DOCUMENT RESUME

ED 086 261 IR 000 117

AUTHOR Burns, Robert W., Jr.
TITLE A Survey of User Attitudes Toward Selected Services Offered by the Colorado State University Libraries.
INSTITUTION Colorado State Univ., Ft. Collins. Libraries.
PUB DATE 73
NOTE 83p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Evaluation Techniques; Libraries; Library Facilities; Library Reference Services; Library Services; *Library Surveys; Measurement Techniques; *Questionnaires; Science Education; Student Evaluation; Surveys; Universities; *University Libraries; *Use Studies

ABSTRACT

A study was conducted at the Colorado State University Libraries to determine the needs and attitudes of students and faculty members in relation to library services in general and to the science reference desk in particular. In addition, the habits and preferences of a cross-section of library users were investigated, and an instrument was developed for surveying library populations. Some results of the study indicate that a majority of Colorado State University Library users live off campus, prefer to use the library from 7-10 P.M., had been in the library within the previous week, do not use the library 'very often' for its more common services, and rarely use the library to read newspapers. Library hours and services including the science reference desk were felt to be satisfactory although there was some negative response to the unavailability of recent journals and journals at the bindery. A literature review of use studies, a sixty-eight item bibliography, and a copy of the questionnaire are provided. (JG)

FILMED FROM BEST AVAILABLE COPY

ED 086261

IR

A SURVEY of USER ATTITUDES TOWARD SELECTED SERVICES OFFERED BY THE COLORADO STATE UNIVERSITY LIBRARIES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

By

Robert W. Burns, Jr.
Librarian For Research and Development

Dr. Ronald W. Hasty
College of Business

Fort Collins, Colorado State University Libraries

1973

IR 000 117

Abstract. This is an account of a user attitude study conducted on a university campus. The investigation attempts to discover patterns of use as well as attitudes toward, and the level of awareness that faculty and students demonstrate toward the services offered them by the Library. The survey uses a three page, sixteen question, instrument which was administered by teaching faculty in the classroom. The report includes a detailed discussion/rationale for the methodology, a demographic profile of the users/non-users, and a review of the literature of attitude studies.

OUTLINE

I. INTRODUCTION

A. Background

B. The Problem and Its Dimensions

C. Parameters of the Problem

D. Goals of this Study

II. METHODOLOGY

A. The Research Design

B. The Instrument Development

C. Selection of the Sample

D. Methods of Analysis

E. Characteristics of the Sample

III. FINDINGS

IV. CONCLUSION

V. LITERATURE REVIEW

VI. BIBLIOGRAPHY

VII. APPENDIX

A. Copy of the Questionnaire as Used

B. Copy of the Letter of Instructions Sent with Questionnaire

C. Table Showing Distribution of the Questionnaire

D. Majors Which Did Not Reply to the Questionnaire

Tables

1. Questionnaires Sent & Returned Compared Against Enrollment By College

2. Distribution of Questionnaire Response by Class in School For All Colleges

2a. Distribution of Questionnaire Response By Class In School For Each College

3. Distribution of Faculty/Student Populations For Colorado State University

4. Preferred Periods of Library Use: Weekdays

5. Summary of All Adjusted Frequency Responses to Question?: "How I Use the Library."

6. Reported Frequency of Library Visits

7. Adjusted Frequency Responses to Selected Library Services at the Science Reference Desk

8. Responses to "Other" Category In Question 7, "What Ways Do You Use The Library?"

9. Summary of Adjusted Frequency Responses to Selected Library Services

10. A Crosstabulation Summary of the Responses (%) to Question 7, "Please Indicate the Frequency With Which You Use the Library to..."

11. Comparison of Place of Residence With Hours Spent In Non-Academic Activities.

12. Summary of High Ratings By Class For Each Service Offered By the Science Reference Desk For Question 10, "How Would You Rate the Following Services...."

13. Comparison of Faculty/Student Responses (%) to Question 8, "How Would You Evaluate the Following Services Offered By the Library..."

14. Class With Highest Response Rate (%) In Each Rating Category

I. INTRODUCTION

Background

This study came about because certain questions were raised by the Colorado State University Libraries staff regarding the value and necessity for continuing to keep statistics at a Science Reference Desk. These statistics were begun some years ago in order that an "accurate, objective" measure of desk activity could be derived. Both the current usefulness and validity of such record keeping was challenged and a study proposed.

After several conversations with the reference staff plus a careful review of the literature, it was decided to learn what we could of the attitudes voiced by the user toward the Science Reference Desk services by means of a questionnaire. From this beginning the study gradually assumed a much broader format and became the search for a measure of user satisfaction to several of the information services offered by the CSU Libraries. The resulting study represents both an attempt to discover patterns of use as well as the attitudes toward, and the level of awareness, faculty and students demonstrate toward the services offered them.

The Problem and Its Dimensions

The study described here is analogous to that undertaken by any market researcher who seeks to discover the attitudes toward a product/service offered the consumer. Dr. Robert Ferber (46), Professer of Economics and Marketing at the University of Illinois, pointed to the similarity in the problems faced by the library investigator and the marketing researcher in a 1967 review of recent trends in marketing research written for a conference

held by the Universtiy of Illinois Graduate School of Library Science. Essentially, the businessman as well as librarian wish to discover what success or nonsuccess the efforts of his organization are having and what adjustments need to be made in their service strategy. It was to just such a problem that the CSU Libraries wished to address itself. Obviously, what had already proven successful in the analysis of similar problems for private enterprise should at least merit a trial in the library/information system environment.

Parameters of the problem

Given the nature of the problem, the authors have taken the position that research on the library/information system user should distinguish between what the user says he uses, what he actually requests, and his attitudes toward the services and materials he is offered. Each is represented by a behavior reaction to the information system and its services but each has a slightly different orientation. In this investigation the authors sought to describe, and quantify selected user attitudes at CSU, as well as discover some measure of the strength with which they are held. Emphasis is on the user and his attitudes toward whatever formal* information system he may have at his disposal. This problem requires the study of broad spectrum of both actual as well as potential users rather than just the person who happened to be in the library at the time a measurement was made. In addition, concern here is with the attitudes and stated behavior of the user and not with those attitudes voiced by the operators (librarians).

---

*Formal is used here in the sense of an organized administrative unit with the assigned function of information storage and retrieval within the organization being serviced. Informal would be communication between individual users, at meetings, social functions, phone conversations, etc.

The attitudinal focus of this study, therefore, is on the library user (whether actual or potential) and his reactions to the library, its collections, staff, and policies.

Further it was felt that the nature of the problem suggested the study should be designed to have much broader applications than just one information system and so the decision was made to strive for the design and test of a measurement instrument which could eventually have a much broader audience than that provided solely by CSU. In essence the authors felt it should be useful at other institutions as well as be suitable for monitoring usage and attitudes toward the same information system over an extended period of time.

Goals of This Study

As stated earlier, the original goal of this investigation was to examine in detail only the Science Reference Desk, its clientele, use and effectiveness. However, because of the obvious and the basic interrelated nature of all of the library's component subsystems the scope of the study was broadened.

Specifically, the goal of the study was stated as follows: to measure and record user reaction (as seen in demand and attitudes) to selected services offered by the library with special attention given to those activites which take place at the Science Reference Desk and to the image reflected by the library and Science Reference Desk among the campus community at large. In addition, the authors wished to prepare a demographic cross-section of the library users/non-users showing their habits, preferences, likes, and dislikes as they relate to the library.

This goal required the development of a viable methodology for defining and measuring some of the variables which affect library/information system user satisfaction when user satisfaction is equated with the ability of the present services to adequately meet the demands of its clientele.

II. METHODOLOGY

The Research Design

The research design must set forth the methods and procedures for acquiring the information needed to meet the goals of the study. The design may be explanatory, descriptive, or casual and may call for information to be obtained from (1) secondary sources, (2) respondents (passively through observation or actively through verbal response), (3) experiments, or (4) simulation. The established goals of the study dictated a descriptive design with information to be obtained from active respondent involvement.

Within this context it was necessary to determine the specific form of the design including the measurement instrument, sampling procedures and criteria, and the methods of analysis.

Critical factors in making the above decisions included time and cost parameters, access to, and anticipated respondent cooperation, sample size requirements where the sample respondents are to be segmented by demographic and other characteristics, and the necessity that both users and non-users be involved.

These factors led to a design calling for the use of a survey questionnaire as a measurement instrument which could be self administered.

The Instrument Development

Prior to the actual instrument development and testing a thorough search of the literature was made for examples of the use of surveys to provide data similar to that needed here. Several were discovered and the reports of their use are summarized in the literature review section of this report. Particularly close attention was paid to the use of attitude scaling in the design of a survey instrument. For a further discussion of the use of attitude scaling techniques see the Literature Review section of this report.

Specific information inputs needed to fulfill the goals of the study were:

1) the demographic characteristics of information system users and non-users including the amount of time spent in non-academic (work) related activities.
2) user preferences for days and hours of opening.
3) how often and when was the last time the respondent was in the library.
4) the frequency and ways in which the respondents used the library.
5) attitudes held toward selected library services with special attention to those offered at the Science Reference Desk.
6) comments and/or reactions to selected miscellaneous services offered by the Library such as a Serials Book Catalog on computer p/o, the availability of recent issues of journals, and the incidence of conflict between user need and a journal being held in the bindery.

Underlying the actual question development was the desire to have an instrument that not only could be used for a single survey of library users and non/users measuring their reactions toward the services offered by a given information system, for an instrument which would be used repeatedly at one installation for monitoring attitudes toward the same information system over an extended period of time. In short the survey instrument required the generalized design format of a self administered client centered

questionnaire that could be adapted for use in a variety of college/ university settings.

A preliminary questionnaire was pretested with two groups of students and then modified to reduce ambiguities. The questionnaire as used appears as Appendix A.

Selection of the Sample

Because it is impossible to measure every item in a universe, sampling must be used to obtain the desired information from that universe. As a result bias in the results may occur from 1) sampling error, 2) non-response error, and 3) response error.

Sampling error arises because not everyone in the population of interest is included. In any sampling the usual result is that the sample selected is not completely representative with respect to the characteristics of the population from which it is chosen. Non-response error occurs when an individual is included in the sample to be taken but, for any of many possible reasons, is not reached. Response error occurs in the collection of information from individuals if the reported value differs from the actual value of the variable concerned. This can only be handled through pretesting and careful question construction.

If a purely random probability sample is taken, the extent of the sampling error can be measured, but not necessarily reduced, by calculating confidence intervals. However, because of the problems of sample frame availability, respondent cooperation, and most importantly time and money constraints, few of the samples that even start with the premise of being purely randomized probability samples do in fact occur.

The problems associated with not having purely random probability sample can be minimized by careful attention to bias introducing factors, increasing the sample size to reduce variances, the use of a design that reduces non-response error, and by checking the characteristics of the

completed sample with those of the population.

For this study telephone, mail, personal interviews and direct distribution were considered as means of getting the questionnaires to the respondents. Mail distribution was discarded because of the large non-response error and the resultant bias associated with this method. Because of the cell sizes needed with cross tabulations, the time and cost associated with personal interviews was prohibitive. There would also be a non-response error here as well. Telephone interviews would have been slow and expensive, required training interviewers and would have limited the sample to individuals with telephones, again introducing bias. Therefore, it was decided to get the questionnaires to the respondents by asking faculty to hand them out to students in class. This method is possible because of a captive environment. It sacrifices pure randomness for efficiency and larger sample sizes, but it also adds a controlled clustering to help reduce variances.

One alternative--distributing the questionnaire to those who came into the Library--biased our findings toward the library user and was therefore dropped.

In selecting this survey method to gather data certain assumptions about the population were made.

1. The population surveyed is a fluid one whose nature, interests, and constituents are constantly changing.
2. A library user (either actual or potential) was defined as anyone attending/conducting classes on the CSU campus. The user population surveyed includes, therefore, both actual as well as potential users.
3. Library users at CSU possess a broad continuum of library skills ranging from the mature scholar experienced in library research to the neophyte freshman who has barely learned where the Library is located

4. Questionnaires would be distributed in only 6 of the 8 colleges because the focus of the survey was toward Science and Technology.
5. A representative sample from each class ranking in each department of the student population was felt to be 15% or 50 people whichever was greater.
6. No assumptions are possible about the time dependency or time independent nature of the data evolved from this study.

In order to arrange for the distribution of the questionnaire meetings were held with Deans or their representatives from the six colleges selected and with most Department Heads during the latter part of January and early February, 1972. At these meetings the questionnaire and its distribution were discussed and assurances of cooperation were received from all concerned. We also requested that all questionnaires be distributed in such a way that each faculty member in every department would complete one. Copies were to be passed out during classes so as to achieve a sampling from each grouping (Freshmen, Sophomore, Junior, Senior and/or graduate). Only those members of the university community who work or attend classes in Fort Collins were considered.

The questionnaire was distributed in six of the eight colleges. Two colleges (Forestry and Home Economics) elected to handle the distribution to their departments themselves. The remaining four asked that we send questionnaires directly to the Department Heads who would then pass them to the instructors for distribution during class/lab periods. As a result, questionnaires went directly to 27 Departments and to two Colleges with five Departments each for a total distribution of 37 Departments. A cover letter (See Appendix B) was also drafted and sent with the questionnaires to the Dean/Department Head handling their distribution.

Questionnaires were mailed by the Library to the Departments during the last week of February and the first three days of March, 1972 in order that they might be passed out before the end of the Winter Quarter, March 8. It should be pointed out here that there were a fair number of respondents who belonged in the two colleges (Business and Humanities and Social Sciences) not covered by the original distribution of the questionnaire, who were in the classroom at the time the questionnaire was administered.

Methods of analysis

Returned questionnaires were coded in the Library using 40 variables and then keypunched on tab cards. These were manipulated by the computer using a packaged set of programs entitled SPSS. An explanation of this package is contained in the book by Nie, Bent and Hull(63). This set of programs enabled us to calculate sums, means, variances, frequencies, percentages, chi-squares, standard deviations, and, to cross tabulate data.

Characteristics of the sample

As stated earlier, this questionnaire sought to obtain a representative sampling from six of the eight Colleges by distributing questionnaires through Deparment Heads to classes. A total of 5,949 questionnaires were distributed and 1,955 were completed and returned for a 32.86% return rate. 593 additional questionnaires were returned blank. As was to be expected, most of the replies were received from students (19.5% of the Winter 1972 enrollment not including Bus & HSS). There were 284 faculty replies out of a possible 770 (36.8% of the faculty headcount as of 1 July 1971 not including Bus & HSS).

Fifteen respondents were classed as "other" and could be faculty spouses, faculty attending classes in the role of students, or people who did not understand to which category they belonged.*

*This also accounts for the discrepancy between the number of students shown on P. 504D (1,656) and the number of students shown on P. 508D (1,650). Page numbers followed by a D refer to the numbered pages of unsummarized data and enable the reader to consult the Tables of raw data on computer printout.

The number of questionnaires distributed to each College was based upon the number requested by the Dean and/or Department Heads to achieve the requested sample goals. Table 1 shows the number of questionnaires sent to each College and the number (absolute and ratio) of student returns with and w/o the Colleges of Business and HSS. As can be seen from Table 1, both distribution to and returns from the Colleges were uneven. The highest rate (percentage) of return was from the College of Home Economics where 196 questionnaires were returned of the 275 sent making a return rate of 71.3% (Table 1 Col. 5). The lowest percentage of returns was received from the College of Natural Sciences where 359 questionnaires were returned of the 2,413 sent out for a return rate of 14.9%. Note, however, that with the exception of the Colleges of Business and HSS, the percentage of student sample returns (Table 1, Col. 5) compared favorably with the student enrollment percentage (Col. 2) by College for the entire University.

Distribution of the returns by classes in school was also representative and corresponded closely with the actual university wide percentages as can be seen from Tables 2 and 2a. With the exception of sophomores (for which the percentage of returns was slightly lower than the university as a whole) and graduate students (for which the responses were slightly higher than the university as a whole), returns correlated quite well with the actual university-wide class distribution. For this reason the replies were judged to be representative of the various classes (Freshmen, Sophomore, Junior, Senior, Graduate) attending the university. There was insufficient evidence to support or deny its representativeness of College populations (Table 2a) in the aggregate, however, other than the fact that the percentage of the sample drawn from each College was, with the exception of Bus & HSS higher than the corresponding percentage attending that College when compared with the total student body. See Table 1 - Col. 2 compared with Col. 7.

In order to further test the representativeness of the sample, the respondents place of residence (Question 5) was checked with actual data and found to be almost identically proportional.

Distribution of the responses by major (Question 2c) was wide and also judged to be representative of the colleges surveyed. Only the first major reported on the questionnaire was counted in the case of one respondent listing several majors. 348 questionnaires left this question (2c) blank and 1,607 questionnaires were returned with valid replies to Question 2c. At the time the questionnaire was administered there were 139 categories of major (report from Office of A/R, January 7, 1972). To these were added three dummy numbers for majors in Nursing, Pre-Med, and Pharmacy, which were reported on the questionnaires but not listed in the A/R Departmental codes. Replies were received from 107 of these 142 majors. The 35 majors for which no replies were received are listed in Appendix D. These breakdown by college as follows: Agriculture--2 majors, Business--7, Engineering--2, Forestry--1, Home Economics--2, Natural Sciences--3, Humanities and Social Sciences--16, and Vet. Med.--2. Many of these are for Special, Non-Degree, or Undecided majors and thus do not detract from the representatives of the sample used. Note too that the greatest number of majors not responding were from HSS and Business, the two Colleges in which questionnaires were not distributed. Nevertheless, many majors outside the thrust of this survey were included in the replies to this questionnaire. For example, General Business, Art, Sociology, History, and Philosophy each had a significant number of replies. With the above in mind, therefore, the authors feel that the responses to this questionnaire can be considered broadly representative of the major courses of study in this University with the exceptions of the Colleges of Business and HSS.

III. FINDINGS

The 16 questions with their various parts sought to elicit information on a broad range of library policies and procedures. This section of the report will summarize the findings and then discuss each question in detail cross tabulating them with other questions, whenever appropriate, in order to discover what relationships, if any, might exist. In order that the reader may examine the raw data for himself when need be, the page numbers followed by a D refer to the pages of data on computer p/O. The reader should also be aware that many of the percentages given are for an adjusted frequency. That is to say they do not include replies for which the question under consideration was left blank. Copies of the questionnaire accompany this report as Appendix A.

Quest. 1

Question 1 was demographic in nature and its findings were discussed earlier.

Quest. 2

The four parts of question 2 were answered only by students and, with the exception of questions 2c and 2d, have been summarized in Tables 1 & 2. Question 2c was discussed earlier under the heading "The Sample and its Selection."

Question 2d relates to the time students spend in non-academic pursuits not including sleeping, eating, or recreation time. Raw data for this question may be seen on p. 510D. 1627 students answered this question. 34.4% spent no time in non-academic activities while another third (32.3%) spent between 1 and 10 hours a week in non-academic activities. 22.2% reported spending between 11 and 20 hours a week while 11.1% spent more than 20 hours a week in such activities. One can infer from this that approximately one-third of the students at C.S.U. spend 11 or more hours a week in non-academic related activities other than sleeping, eating or recreation while in

school, and that two-thirds spend less than this amount. Because of the way this question was worded, the authors feel that the principal non-academic activity referred to here is employment for the purpose of earning money.

This rather even distribution of those engaged in outside activities among: not at all (1/3), from 1 to 10 hours per week (1/3), and more than 11 hours per week (1/3) was interesting and felt to be of some significance for the scheduling of library hours. It indicates that the number who feel they must, for whatever reason, carry outside (non-academic) activities approximates twice the number who are free from such burdens. Such a distribution can be expected to affect both library hours as well as loan policies by contributing to student pressures on the library to meet their deadlines (end of quarter, papers due, exams) during the quarter. Furthermore, students carrying in excess of 20 hours per week (approximately 11%) of outside activities will require maximum flexibility in their library schedules. The questions of how well and in what ways this group should be accommodated is an administrative one involving the balancing of resources. We wish here only to draw attention to the existance of such a group and to comment on their requirements. Dealing with this group and its unique needs is an administrative concern and beyond the scope of this report.

Differences among classes with respect to the amount of time spent in non-academic activities (Quest. 2d, p. 434D) were found to be significant. Of those spending none of their time in non-academic activities, the highest percentage (33.2%) were freshmen; of those spending 10 hours or less the highest percentage (21.2%) were juniors; of those spending between 11-20 hours the highest percentage (26.9%) were seniors; and of those spending 20 hours or more the highest percentage (33.7%) were graduate students. Or put another way, of all those who reported that they worked 11 hours or more a

week the higher percentage were at the graduate and upper division levels where academic pressures are likely to be greatest (p. 434D).

Differences among those who spend none, 10 hours, between 11 and 20 hours, or more than 20 hours per week in non-academic pursuits (p. 49D) with respect to their first choice of a time period when they prefer to use the Library were found not to be significant when the responses to the 12-8 a.m. period were eliminated (otherwise these differences were judged to be significant). Note too that no matter how much time the respondent spent in non-academic activity (Question 2d), he still preferred to use the Library during the 7-10 p.m. weekday time period. Differences were not significant for the second or third choices with 7-10 p.m. and 10-12 p.m. the top choices.

Questions 3 and 5 were demographic in nature involving the makeup of the sampled population. They sought to ascertain how long the respondent has been at C.S.U. (Question 3) and whether his/her residence is on or off campus (Question 5).

Quest. 3

The replies to question 3 (p. 512D) "How Long Have You Been at CSU?" showed that the respondents were fairly evenly distributed with no group in the majority/minority. Roughly one-third (36.3%) reported that they had been on the campus 12 months or less, one-third (33.3%) had been on the campus between 13 and 35 months, and the remaining third (30.4%) had been on the campus three years or longer. Note that the 704 replies indicating that they had been on the campus less than a year does not correspond with the 379 freshmen who answered the questionnaire (Question 2a). The difference must come, therefore, from both faculty and/or students in other classes who are new to this campus. With 1/3 or more of the people on our campus here less than 12 months (reported in a Winter Quarter) the implications for a

continuing library education/information program would seem obvious.

Differences among the Colleges with respect to the amount of time their respondents had been on the campus were found to be significant (p. 438D). In each College the percentage of respondents who had been on the campus 12 months or less were as follows: Agriculture 37.1%, Forestry 53.3%, Vet. Med. 31.2%, Nat. Sci. 44.6%, Engineering 28.5%, HE 31.8%.

Quest. 5

Of interest too was the fact that well over two thirds (72%) of the respondents reported that they lived off-campus (Question 5, p. 516D). The fact that a large proportion of those the Library serves (both actual and potential) reside off-campus, and the finding that approximately 1/3 of all student library users work more than 10 hours a week--lends additional support to an earlier remark concerning the need for flexibility in the setting of library hours, particularly during the periods when students are under maximum pressure.

In order to gain some further insight into the relationship between residence and the amount of time spent in non-academic activities Questions 2d and 5 were cross-tabulated (p. 452D). Differences in the student's place of residence, i.e. on/off campus, with respect to the amount of time spent in non-academic activities were found to be significant. Data for this cross tabulation have been summarized in Table II. Of those living off-campus 62.4% spent between 0 and 10 hours per week in non-academic activities, while of those living on campus, 76% spent less than 11 hours a week in non-academic activities. Of those living off-campus 37.6% spent 11 hours or more in non-academic activities, while of those living on campus 24.0% spent 11 hours or more in non-academic activities.

Quest. 4

In order to obtain some indication of the frequency with which people come to the Library a question was asked to determine the last time the

respondent had visited the Library. This question (#4) asked the respondent to check one of four alternatives. Half (50.3%) of the replies (p. 514D) indicated that they had been in the Library during the previous 7 days, one fifth (23%) indicated that they had been in the Library on the day that the questionnaire was administered, 16.1% indicated that they had been in the Library more than one week ago, and 10.5% indicated that they had not been in the Library for a month. This suggests that one might infer, for planning purposes, that the Library should anticipate visits (one or more) from 23% of its constituents any day on which classes are being held, visits from 50% of its constituents one or more times a week, that 16% of its user population will visit the library at intervals longer than one week but less than every 30 days, and that 10% will come in no more than once a month. It also suggests an interesting comparison with Ohio State University where "... two-thirds of those completing the questionnaire had previously visited the library four or more times during the preceding two weeks ..." (65 p. 419). On the C.S.U. questionnaire, 73% of the respondents indicated that they had been in the library either "today" or within the previous 7 days. Thus both surveys found a high percentage of the respondents to be heavy (in the sense of frequent visits) users; i.e., those who used the Library did so often. At C.S.U., this number was substantial. Differences seen among classes with respect to the last time members of that class reported being in the Library (Question 4) were significant. Recency of visit was found to be closely associated with class standing in that the higher the class standing the more likely it was that the respondent had made a recent visit to the library (p. 436D)

As an additional step, Question 4 was cross-tabulated with Question 5 in order to discover what relationships, if any, exist between place of residence (on/off campus) and the last time the respondent was in the Library

(p. 447D). Differences in the last time the respondent was in the Library with respect to place of resident were found to be not significant.

Differences among the Colleges with respect to the last time their members were in the Library were not found to be significant (p. 441D).

Quest. 6

On question 6 (p. 518Dff) the respondents were asked to indicate their first, second, and third choices for that period during the day when they preferred to use the library. Replies for all periods were tallied in order to show for each time interval its percentage of first, second, and third choices. These figures were then placed beside the time period.

A summary of this data appears in Table 4. Next, all periods under each of the choices were ranked in their order of popularity with the most popular time period under each choice ranked first (#1) and the least popular ranked eighth. By doing this, it is possible to arrange all first choices, all second, and all third choices in their order of popularity. With the exception of first (most popular) and last (least popular) under each choice, there were some decided shifts in the ordering of choices. The period from 7-10 p.m. remained easily the most popular among all three choices. The period from midnight to 8:00 a.m. was always the least popular with little interest shown in keeping the Library open during these hours.

When the rank value assigned to each time period under each choice is used as a weighting factor and summed, it is possible to further order the entire table of times to show the most popular through least popular time periods. These appear as sums in the last column of Table 4. The most desirable (smallest sum) continued to be the interval from 7:00 p.m. to 10:00 p.m. Using as a weighting factor the rank assigned to a time interval, there was very little difference in the values assigned to the next three choices. These were: the afternoon from 3:00 to 5:00 p.m., the period between 12:00 noon and 3:00 p.m., and from 10:00 p.m. to midnight. The hours

from 10:00 to 12:00 noon and from 8:00 to 10:00 in the morning were not popular; nor was the period from midnight to 8:00 a.m.

In summary then, mornings were not popular nor were the late evening/ early morning hours considered a desirable time. Most popular was the period right after dinner (evening meal), and next were the afternoon periods. It should be pointed out that these findings are not in accord with those reported in the Ohio State University survey (65, p. 420) where "... heaviest utilization of library facilities came during the afternoon, followed by morning and evening, respectively ..."

If these patterns are consistent throughout the year, there are strong implications here for staffing at C.S.U. The Library can reasonably expect a heavy influx of people during the period 7-10 p.m. with many remaining from 10 to midnight. Aftenoons will also be busy while less traffic can be expected during the mornings.

There were significant differences with respect to time preferences (weekdays, 1st, 2nd, & 3rd choices) between students and all others (p. 405Dff). Student preferences are for the period 7-10 p.m. (first choice of 39.5%) with the data for second and third weekday choices following suit but showing smaller differentials, i.e. response percentages were more evenly distributed over hours of opening. Indeed, the difference between 7-10 p.m. and 10-12 p.m. as a second choice among students when comparing students and non-students was only 1% further reinforcing a strong preference among students for the evening hours. Faculty preferences on the other hand, were evenly distributed throughout the library work day with a slight preference (27.5%) for the 8-10 a.m. period as a first choice while second and third choice highs were for the 3-5 p.m. period.

Differences between those living off campus and those living on campus

from 10:00 to 12:00 noon and from 8:00 to 10:00 in the morning were not popular; nor was the period from midnight to 8:00 a.m.

In summary then, mornings were not popular nor were the late evening/ early morning hours considered a desirable time. Most popular was the period right after dinner (evening meal), and next were the afternoon periods. It should be pointed out that these findings are not in accord with those reported in the Ohio State University survey (65, p. 420) where "... heaviest utilization of library facilities came during the afternoon, followed by morning and evening, respectively ..."

If these patterns are consistent throughout the year, there are strong implications here for staffing at C.S.U. The Library can reasonably expect a heavy influx of people during the period 7-10 p.m. with many remaining from 10 to midnight. Afternoons will also be busy while less traffic can be expected during the mornings.

There were significant differences with respect to time preferences (weekdays, 1st, 2nd, & 3rd choices) between students and all others (p. 405Dff). Student preferences are for the period 7-10 p.m. (first choice of 39.5%) with the data for second and third weekday choices following suit but showing smaller differentials, i.e. response percentages were more evenly distributed over hours of opening. Indeed, the difference between 7-10 p.m. and 10-12 p.m. as a second choice among students when comparing students and non-students was only 1% further reinforcing a strong preference among students for the evening hours. Faculty preferences on the other hand, were evenly distributed throughout the library work day with a slight preference (27.5%) for the 8-10 a.m. period as a first choice while second and third choice highs were for the 3-5 p.m. period.

Differences between those living off campus and those living on campus

with respect to preferred hours for using the Library (first and second choices only) were found to be significant. Morning hours were slightly more popular with off-campus students than with those living on campus, while for the evening hours the converse was true and among both groups (off or on campus) the 7-10 p.m. period continued to score highest (p. 141D).

Differences between Colleges (Students only) with respect to weekday time preferences for using the library were found not to be significant for first, second, and third choices (p. 30Dff). Nor does class standing significantly influence the distribution of a preferred time (1st, 2nd, or 3rd choices) for using the library (p. 11D).

As an interesting aside, it should be pointed out that differences in the distribution of the responses between those residing on and off campus with respect to their rating (excellent, good, fair etc.) of the library's hours of opening (Question 8b) were not found to be significant (p. 233D). Both rated (highest percentage of replies) library hours as good.

The results of data assembled on the weekend preferences proved inconclusive.

Quest. 7

Question 7 (p. 530Dff) was used to ascertain the frequency with which respondents used the library to perform various activities. Six activities plus one category called "other" were used. "Other" was further subdivided to show 9 additional categories (discovered as the questionnaires were tallied) one of which was used as a dumping ground for everything remaining. Note that the replies to "other" reflect only the percentages of those replies to this part (7g) of Question 7 and are not percentages of the total replies to Question 7. 1621 (82.9%) of the replies left 7g blank.

Several interesting points emerge from the responses to this question. See Table 5, "Summary of all Adjusted Frequency Responses to Question 7 ...,"

and Table 8, "Responses to "Other" Category ... "First, the highest percentage of respondents checked "occasionally" under each category (Study My Own Books, Read Reserve Books, Consult. . . etc,) of use except in the reading of newspapers where 45.1% of the respondents reported that they never used the library for this purpose. This invites the question as to whether we surveyed the correct College* population to answer this question or is the Library spending a disproportionate amount of money on a service whose use does not justify its cost. Furthermore, the highest responses were fairly evenly distributed among "occasionally" (24.3%, 26.4%, 34.7%, 30.1%, and 35.3%) for all the activities in Table 5 with the exception of "to read newspapers". There was no single activity which predominated, i.e. was performed by a majority, in the uses being made of the library. Indeed, the highest percentage of responses was to a non-use category, the reading of newspapers. The highest percentage of responses under "very often" was received for the activity "to study my own books or notes" (10%); and the highest percentage of responses under "often" were for the activity "to consult library materials (not including reserve books) for class," (27.8%). Second, there was no single grouping in the "Other"category (Table 8) which could qualify for heavy or even moderate use, i.e., more than 20% of the responses. Third, more than 40% of the responses (795) indicated that they rarely or never used the library to read reserve books. Fourth, an increase in class standing and use of the library to check books out (7e)

---

*Differences among all colleges with respect to their reported frequency of use of newspapers (Question 7f, p. 176D) were not found to be significant. However, it must be remembered that this survey was not intended to examine populations from the Colleges of Business or Humanities Social Sciences.

were found to be closely associated (p. 162D). And finally, 1/5 or 20.5% of the respondents reported that they never used the library "To Study My Own Books or Notes."

Data for the "Other" category (7g) of this question are summarized in Table 8 and may be seen on p. 542D. The three highs from this Table were as follows: to read magazines reported by 11.4%, to use the Zerox reported by 10.8%, and unclassified "other" uses reported by 38.9%. One wonders what uses were not covered by the categories within the question itself which ranged from the traditional, "to check books out" to the more unorthodox but common "to sleep". Of the remaining categories displayed in Table 8 none ranked higher than 9%.

The differences between student and faculty responses to all parts of Question 7 (p. 408Dff) with respect to their preferences (very often, often, occasionally, etc.) were found to be significant. A summary of the replies may be seen in Table 10 with all highs underlined. The nature of these replies lends credence to what we have long assumed a priori, i.e. that students and faculty use the library in significantly different ways at C.S.U. Some similarities will be noted, however, in the preference categories (very often, often, etc.) showing the highest percentages among students and faculty. For example, both groups had their highest response rate (%) under "Occasionally" for 7d, "Consult Library Materials For Pleasure," and 7e "Check Material Out of the Library," and in the preference category "Never" under "Read Newspapers."

When the various parts of question 7 (with the exception of 7g, "other uses") were cross-tabulated with Question 3, "How Long Have You Been at CSU?" differences in the length of time at CSU with respect to the frequency with which the respondents used the library to "Study My Own Books," "Read Reserve Books", "Consult Library Materials For Classroom or Research," "Consult Library Materials For Pleasure," "Check Material Out of the

Library," and "Read Newspapers" were found to be significant. (p. 443Dff and 207D, 208D).

One-fifth (23.6%) of the respondents who had been on the campus less than 12 months and one-fourth (25.9%) of the respondents who had been on the campus between 13 and 35 months reported "occasional" use of the library "to Study My Own Books," while one-fourth of those who had been on the campus 3 years or more reported "never" using the library for this purpose. Use of the library for this purpose showed a slight decrease among those who had been on the campus longer.

Use of the library to read reserve books fared little better. Among those who had been on the campus 12 months or less almost one-third (27.5%) reported "Never" using the library for this purpose. Of those who had been on the campus between 13 and 35 months as well as those who reported being on the campus 3 years or more one-third (30.3% and 30.8% respectively) reported using the library "occasionally" to read reserve books. Use of the library to read reserve books is not reported as a frequent occurrence but does show a small increase the longer the respondent remains at CSU.

Using the library to "Consult Library Materials for Classroom or for Research Needs" rated highest in the "occasionally" category (by those on campus less than 12 months) and "often" (by those on campus between 13-35 months.) categories. There was a decided increase in the number (%) of those rating their usage of the library for this purpose as "often" among those who had spent more time on this campus. 35.7% of those who had been at CSU 3 years or more reported that they "often" used the library for this purpose. In summary, a slight increase in the use of the library for this purpose is seen among those who have been on the campus longer.

All groups selected "occasional" use as the most common response to

"Consult Library Materials For Pleasure or to follow an interest outside the classroom." There were no discernable trends except that almost half of those reporting that they never used the library for this purpose had been on the campus less than 12 months.

Among those who reported use of the library to "Check Material Out of the Library" the largest number reported "Occasional" use with an increase directly associated with the number of years at CSU. And among those reporting use of the library to "Read Newspapers" the greatest number in all categories checked "Never" such that no matter how long the respondent had been at CSU he reportedly does not use the library for this purpose.

Clearly respondents preferred to make only occasional use of most of those services listed in Question 7. Two deviations from this behavior pattern were noted. First, no matter how long a respondent had been at CSU, his preference was not to use the library to read newspapers. Secondly, and on a more positive note, those who have been on the campus longer showed an increase in their stated use of the library to "Consult Library Materials For Classroom or Research Needs."

Differences between those living on campus and those living off campus with respect to the frequency with which they use the library to: study my own books, read reserve books etc. (Question 7a-e, p. 147Dff) were found to be significant in all cases. Differences between those living on campus and those living off campus with respect to the frequency with which they use the library to read newspapers (7f) were not found to be significant (p. 230D). In summary, off campus students were more likely to use the library to read reserves, to consult library materials for classroom or research use, and to consult library materials for pleasure.

Differences between Colleges (students only) with respect to the fre-

quency with which they use the library to read reserve materials, or consult library materials for pleasure were found to be significant (p. 41Df). Differences between Colleges (students only) with respect to the frequency with which they used the library to study their own books, consult library materials for classroom and research, read newspapers or check materials out of the library were not significant. As an interesting aside it should be pointed out that students in the College of Home Economics were more likely to use the Library to study their own books or to read reserve books and less likely to use the Library for pleasure reading than students in other Colleges (p. 47D, 43D, 41D).

When class standing was cross-tabulated with parts a-f of Question 7 (p. 20Dff, 162D, 163D), it was found to be associated with significant differences in the following uses of the library: to study my own books, read reserve books, consult library materials for pleasure, consult library materials for classroom or research needs, and check materials out of the library, but not in the reading of newspapers. For example, graduate students indicated that they are much less likely to use the library to study their own books than undergraduates. Junior, senior, and graduate students indicated that they are much more likely than freshmen or sophomores to use the library to read reserve books. As class standing increases there is a significantly greater increase reported in the use of the library to "Study My Own Books or Notes." And as class standing increased the stated usage of the library to "Consult Library Materials for Pleasure" increases. In addition, the higher the class standing of the respondent the more likely became use of the library to check material out. There was an especially large difference noted here between graduate students as opposed to the undergraduate.

Quest. 8

Question 8 (p. 544Dff) surveyed the attitudes held toward the five basic services offered by the library to its users. Each service was rated on a 6-point scale which has been translated into excellent, good, fair, not good, fairly poor and poor for tabulation. The respondent was asked to check the space which most closely approximates his reaction to that service. One space was also provided for a neutral or "no opinion" reaction. A summary of these responses may be seen in Table 9. Of the five services studied each received its highest number (percentage) of responses under the category "Good" with the exception of Part a, "Having the Material I Need" where the greatest number (24.9%) of respondents checked "Fair", and Part e, "Help From the Science Reference Desk," where the greatest number (32.8%) of the respondents checked "No Opinion". In fairness to the Science Reference Desk, it should be pointed out that this survey included a cross-section of the non-business/humanities-social science University population and did not focus on just the scientific/engineering disciplines. Best evidence of this is seen in the large number/variety of respondent majors.

Differences between faculty and students with respect to all parts of Question 8, "How Would You Evaluate the Following Services Offered by the Library . . ." were significant (p. 416Dff). Data for this part of question 8 is summarized in Table 13. Library services are clearly well received with "Good" achieving the highest percentages most often. No service received its highest rating in "Not Good, Fairly Poor, or Poor". Nor did any service receive its highest percentage in the "Excellent" column.

Differences in the responses of those residing on/off campus with respect to their rating (excellent, good, fair, etc.) of the Library's hours of opening (Question 8b) were found not to be significant (p. 233D).

When class in school was cross-tabulated against the rating assigned each of the services in Question 8 (p. 165Dff), "Having the Material I need,

Hours of Opening etc." the differences were found to be significant in every case. Data from this cross-tabulation has been summarized in Table 14. Displayed here are the highs under each rating category for each service. Graduate students viewed library services in a favorable light and appeared well satisfied with what was offered. While juniors, seniors and freshmen appeared less satisfied in their tendency to rate these services as not good, fairly poor, and poor.

Quest. 9

Responses to the question, "How often do you go to the Library," (Question 9, p. 554D) were grouped into Daily, Weekly, Monthly, Quarterly, No More Than I Can Help It, and Never. The respondent was asked to mark each of these under once, twice, three times, or more. 34 or 1.7% of the returned questionnaires left this question blank. Data for this question are summarized in Table 6, "Reported Frequency of Library Visits." The most frequent responses were two (15.7% checked) and three (15.7% checked) times weekly with 13% of the respondents reporting visits of at least once daily. The next group in order of frequency of occurrence were those reporting one visit a week. These accounted for 12.3% of the responses. The data saw a decided polarity in the responses with all remaining choices below 6.5%. Interestingly enough, 6% of the respondents reported visiting the Library, "No More Than I Can Help It" indicating a small residue of negativism toward the Library and its facilities. A very limited number (less than 1%) reported never having visited the library, a fact which the authors find encouraging. In addition, this survey found positive evidence that frequency of visits is associated with the level of satisfaction such that those who visit the library more frequently tend to exhibit a higher level of satisfaction. (p. 70D).

If the responses are summed for each category in Question 9, the replies are as follows: daily visits 21.8%, weekly 48.7%, monthly 16.4%, quarterly

6.2%, "No More Than I Can Help It", 6% and "Never" 0.8%. This compares quite well with the responses to question 4 in which 23% indicated that they had been in the library on the day that the questionnaire was administered, 50.3% of the replies indicated that they had been in the library during the previous 7 days, 16.1% indicated that they had been in the library more than one week ago, and only 10.5% indicated that they had not been in the library for a month.

Differences between students and faculty with respect to the reported frequency of their visits to the library were significant (p. 421D). The period with the largest number of faculty visits reported was "once weekly" (24.2%) with "twice weekly" (22.8%) close behind. The remainder of the faculty responses were so small, less than half of those reporting 2 visits weekly, as to indicate a clear preference among faculty for visits of once or twice a week. Students reported visits of "Three times weekly" (16.6%), "Daily" (14.8%), or "Twice weekly" (14.4%).

Quest. 10

Question 10 (p. 557D) sought to elicit from the respondent a reaction to those library services which he has used/experienced at the Science Reference Desk. After each of the seven services the respondent was asked to check that adjective on the scale which best describes his evaluation of the activity. In addition, the respondent was asked to rate only those services with which he has had direct experience and cautioned to make no mark after any activity not experienced.

Reactions to those services offered at the Science Reference Desk were for the most part positive with the highest number of replies in each case ranging from very good (the highest percentage of responses made to the question on Location Assistance) to acceptable (the highest percentage of responses to the questions on Group Lecture Tours and Answering the Phone.) It should be pointed out, however, that no service received a majority of its replies in the "Extremely Good" category. Nor did any service receive a

majority of its replies marked Poor, Very Poor, or Unacceptable. This would seem to indicate that overall reactions to library services are clearly positive. Although it is true that there were some replies which judged a service as Unacceptable (5% of the replies to Group Lecture Tours so stated), the replies at the other end of the continuum were much stronger with 13.8% of the replies under "Courtesy Toward the User", judging it to be extremely good. It should also be pointed out that the highest percentage of "No Opinion" responses (11.5%) as well as the highest percentage of blank replies (74.6%) were received for the question on Group Lecture Tours. Clearly, some type of remedial action is called for here.

In summary then, as one looks at Table 7, there is a distinct shift toward the positive (left) side of the scale. The higher proportions are all found to the left of center which bodes well for the Library. Areas where Library improvement could be shown are Availability Assistance (10b), Group Lecture Tours (10e), and the Availability of a Librarian (10g); but there appears to be no cause for alarm even here since the majority of the reactions elicited by the Library appeared positive and favorable. This is not to imply that our efforts can be relaxed, rather it indicates that continuing Library efforts at their present level will be satisfactory in most situations to most of the Library's clients.

Differences in the responses between students and faculty with respect to their rating of each of the services offered at the Science Reference Desk were found to be significant (p. 423Dff). Among the faculty the highest percentage rated Location Assistance (38.4%), Availability Assistance (32%), Courtesy Toward the User (36.8%), and Answering Of The Phone as "very good" (29.9%). They also found a librarian available "most of the time" (64.3%); but only 61 responded to the question on Group Lecture Tours and of these 32.8% had no opinion. Guidance in the use of bibliographic tools was reported as "good" by 31.6% of the faculty with the percentage difference between

"good" and "very good" so slight as to be negligible.

Among the students, Location Assistance (26.9%) was rated as "very good", Availability Assistance (29.3%), Guidance In The Use Of Bibliographic Tools (30.9%) and Courtesy Toward The User (33.8%) were rated as "good", while Answering The Phone (39.2%) and Group Lecture Tours (34.7%) were rated as "acceptable". Students also felt that librarians were available "most of the time" (51.8%).

Differences in the response of each class to each part of Question 10 (p. 250Dff) were significant with respect to their rating of services offered by the Science Reference Desk. The higher the class standing the higher the proportional level of satisfaction with the services offered. A summary of the high responses may be seen in Table 12.

Quest. 11, 12, 13

Questions 11, 12, & 13 involved the use of and demand for the Serials Book Catalog, a relatively new library tool prepared on computer print-out and available at several different points over the library. Question 11 asks if the respondent has used this tool. Almost 70% (p. 571D) reported that they had not, while the remaining 30% reported they had. The replies to this question coupled with the cross-tabulation of Questions 4 and 11 (p. 76D, 78D) indicates that the people who use the SBC are heavy library users even though they are in the minority.

If the answer to question 11 is no, the respondent is then directed skip to question 14. As a result, 74.6% of the replies to question 12 and 63% of the replies to question 13 were returned blank. Of the 30% who had seen and/or used this tool (Question 11), the majority used it at the Science Reference Desk (Question 12, p. 573D and Question 12, p. 77D).

Question 13 (p. 575D) sought to determine the frequency with which this tool was used. On a seven point scale ranging from "very often" to "unknown"

the largest number of responses (26.5%) were received under "Use Occasionally". 5.9% reported that they used the SBC "very often", and 18.9% reported that they used it "often".

Reported differences between faculty and students in their use/non-use of the SBC were found not to be significant. (p. 430D)

Reported differences by class in the use/non-use of the SBC were significant (p. 256D) with the higher percentage reporting non-use except among graduate students where 53.5% reported that they had used this tool, while 46.5% reported that thay had not. The percentage reporting non-use decreases from freshmen (with highest reported non-use %) to graduate student (lowest % of reported non-use).

Of those answering questions 13 and 2a (608) the difference among classes with respect to the frequency with which they used the SBC was judged to be significant (p. 258D). 27% of the freshmen replying (total of 91) reported the SBC as unknown, 20% of the sophomores replying (total of 75) reported they rarely used the SBC, 27.4% of the juniors replying (total of 117) and 24.5% of the seniors replying (total of 139) reported occasional use of the SBC, while 30.2% of the graduate students (total of 179) replying reported that they used the SBC often.

In summary, one would have to conclude that the SBC on computer printout is not a tool with a broad base (large number) of different users. Approximately 1/3 of the respondents reported that they had used or were aware of it. Heaviest use of the SBC is by students at the graduate level. Note, however, that no information was available on the frequency with which it was used by library staff for whom it has certainly had some impact, presently undefined. Finally, the authors conclude from observation and the responses to Question 12 that the heaviest point of contact between

user & SBC is at the Science Reference Desk where it seems to wear out well before a replacement can be obtained.

uest. 14

One of the more interesting questions involved the users reaction to the demand for library service at the Science Reference Desk (Question 14, p. 577D). Use of this question was a deliberate attempt to gain some insight into another facet of the users reaction to the services offered him. Only 12.2% of the respondents left this question blank while 54.2% (931) checked no opinion. The latter was construed to mean either no knowledge of the Science Reference Desk, or no awareness of either an increase or decrease in activity. What is of more significance here is the observation that less than 1% of the remaining replies felt the demand for service to be decreasing while almost 1/3 (31.2%) felt that such demands (at the Science Reference Desk) were increasing. This could be the result of one or several factors: having to wait for service, finding no one there to answer a question at the time the respondent approached the desk, or observing people standing around the desk (service point) for whatever reason. In any event, this high a percentage of people who feel the demand for service is increasing should act as a warning of potential problems and care should be taken to discover periods of heavy use or demand in order to insure some flexibility in the scheduling of backup to support this vital service point. 13.7% of the replies judged the demand for service to be running about the same.

Of those who rated "Help from the Science Reference Desk" as excellent or good, 50.5% and 44.2% respectively saw the demand for library services at the Science Reference Desk as increasing. While the majority of those who rate it fair, not good, fairly poor, or poor in each case checked "No Opinion" when asked whether service at the Science Reference Desk was Increasing, Decreasing or About the Same. Differences in the ratings given this service with respect to whether demand is seen as increasing, decreasing, staying about the same, or no opinion were found to be significant (p. 298D).

Differences in the amount of time a respondent has been at CSU with respect to his judgment about SRD demand increasing, decreasing or remaining the same were found to be significant (p. 69D). The data indicates that as the amount of time a person spends at CSU increases his perception of the demand at the SRD is that of an increase.

Quest. 15, 16

The last two questions (15 and 16) involved the availability of journals--a basic library resource for the scientific and technical disciplines. In the replies to both questions there was some evidence of dissatisfaction which, although not high, was nevertheless present and should be noted. Question 15 covered the availability of the most recent issue of a journal on the steel display shelves. This question was concerned only with the desired issues' presence or absence and no attempt was made to discover the reason, i.e., if the user had merely looked in the wrong place (recent issues of this title are found elsewhere), or the issue desired was in use by someone else and hence not on the shelf at the time he needed it. This question was scaled such that the respondent chose one of the following: always, usually, about 50% of the time, seldom, never, or no opinion. 25.8% (p. 579D) of the replies reported that they usually found the required item in this location, while another 25.6% (p. 579D) reported success about half of the time. From this one can infer that (53%) of the users judged themselves to be successful in finding the most recent issue of the needed journal on the steel shelves half or more of the time. The interpretation of this as satisfactory or unsatisfactory will be left to the administration. It should also be pointed out that almost 1/4 (26.8%) had no opinion in this matter. Note too that while 1.6% of the respondents report always finding their journal, 4.2% reported that they never found the journal they needed. 12.5% or 245 replies left this question blank.

Quest. 16

The answers to the last question (Question 16, p. 581D) exhibited some dissatisfaction with library procedures that could well become a future source of trouble. The question involved the incidence of a user's not being able to find a needed volume because it was in the bindery. How the patron discovered this fact was not examined. 22.8% of the adjusted frequency replies indicated that the journal they wanted was "always" or "usually" in the bindery while 35.0% indicated that "sometimes" the journal desired was in the bindery. Because of the way this question was scaled, one can infer that more than half of the respondents (57.7%) found the journal they wanted to be in the bindery at least half of the time--a situation which could lead to serious dissatisfaction with present service and needs remedial attention. 11.8% of the respondents reported their needs seldom in the bindery and 1.8% reported them never in the bindery. 28.6% reported no opinion and 13.1% or 256 left this question blank on their questionnaires.

Differences in the responses of students and faculty to this question were significant with respect to the respondent's estimate of how often this occurred (p. 413D). 72.3% of the faculty and 55.[illegible] of the students estimated that this had occurred one half or more of the time lending further support to the need for attention in this area.

IV. CONCLUSION

This report is intended to be a descriptive survey of the library user at Colorado State University and of his reaction(s) to the services offered by that institution. Emphasis has been placed on recording rather than evaluating and few attempts were made to judge or to evaluate adequacy or inadequacy, although some warning signals were pointed out from time to time by this report. Correction and/or adjustment of any deficiencies remains the province of the administrator charged with the responsibility for maintaining high quality service. The data presented here represents only one piece in a large mosaic of information necessary to his decision making.

Nor is this report intended to be a definitive study of the user in a college/university library setting. Indeed, it is highly specific to both the time and place in which it was prepared and administered. Nevertheless, the authors do feel that this work constitutes a start toward the construction of a generalized instrument from which the library manager can learn more about the behavior, needs, characterisitcs, and attitudes of his clientele.

The authors are convinced that when one studies such a nebulous entity as the information system "user" there can never be a definitive report, only "better data" in the sense of a sharper image of the user supported by a more rigorous methodology. In the kind of fluid milieu of time, people, places, and circumstances typical of information systems, forecasting becomes an extremely difficult task, part art, part science, and the best one can hope for is only an increased probability that behavior will follow its predicted course. Under such circumstances information about the demographic characteristics of a user population, its attitudes, behavior and how they are associated is placed in the hands of the administrator as

just what it is--a snapshot of the real world and not its totality. Only probability can tell us how closely the one approximates the other. Such a view should not detract from the validity of the findings in this report, however. Rather it should serve only to place the study in its proper perspective.

Two difficulties face those who would use this report. The data is voluminious and for that reason difficult to assimilate. Secondly, much of the data is subject to interpretation and will no doubt be debated for a long time to come. To this extent the report can and should provide a fertile source of ideas and study for many years to come.

Finally, if this report can stimulate a more vigorous examination of the information system user--his habits, needs, preferences, folklore, characteristics, behavior patterns, and attitudes--among the decision makers, it will have succeeded in reaching at least one of its goals, that of bringing to the surface for examination some of the present misconceptions we have about information system users through the creation of a more viable methodology for examining those variables which affect library/information system user satisfaction.

This study did not accomplish all of its goals nor was it uniformly successful in those it did reach. It does measure and record in a useful fashion student and faculty response to selected services offered by the Library with primary attention focused on those activities taking place at the Science Reference Desk. It developed a demographic profile of our potential users, their habits, likes,dislikes, characteristics and preferences. It also offers some interesting insights into the image of the

library help by its constitutuents together with the role played by the SRD in the campus community. Briefly these conclusions may be summarized as follows:

1. A large share of the students at CSU spend some part of their working week in non-academic activities such as employment, volunteer work, etc. This does not include the normal time spent in eating, sleeping or recreation. For two-thirds of them this is 10 or more hours a week.

2. Almost one-third of those questioned had been on the campus less than 12 months which could contribute to much of the ignorance about and inexperience with library service.

3. Nevertheless, 73% of those queried had been in the library either within the previous seven days or on the day that the questionnaire was administered.

4. Most respondents (72%) lived off campus and all preferred to use the library during the period between 7-10 P.M.

5. Few respondents used the library "very often" for any of its more common services. Most preferring "occasional" use with the exception of two cases; 27.8% of the respondents used the library "often" to consult library materials for classroom or research needs without checking them out, and 20.1% of the respondents reported using the library "often" to check material out. One of the big surprises came with the reponses to part f for question 7 when 45.1% of the respondents reported never using the library to read newspapers. Clearly newspapers do not have a broad base (r. large number of different users) among the six colleges surveyed.

6. Help from the various service points was judged to be satisfactory as were the hours of opening. The Library was rated fair to good in having the materials needed by a patron. The surprise in question 8 came when 32.8% of the respondents reported having no opinion about "Help from the Science Reference Desk."

7. CSU libraries can expect a visit from at least 50% of the population it serves one or more times every week that school is in session.

8. Services offered at the Science Reference Desk are being performed in a satisfactory manner. There was no evidence of any widespread dissatisfaction or negative reaction to what is presently being offered at this service point. The attitude is a positive one of acceptance toward these services.

9. Major use of the SBC is made by a very limited clientele who, despite their small numbers, make heavy and continued demand on this bibliographic tool. One fourth of the users report using it "often" or "very often." The location seeing heaviest use is the SRD.

10. There is some negative feeling among users about being able to find the most recent issue of a journal on the steel display shelves and about journals being in the bindery when needed. Remedial attention should be considered in both instances.

11. A fairly substantial portion of CSU library users were not surveyed. As of 7/6/73 there were 1800 registered non-CSU library users. No figures were available for non-CSU users at the time this survey was conducted, but it is felt that the CSU Libraries has supported a large non-CSU user population for many years.

Our second goal "to develop viable methodology for quantitatively defining and measuring some of the variables which affect library/information system user satisfaction..." was only partially met. To the extent that we were able to adapt a standard set of analytical programs developed for the social sciences (SPSS, 63) to an area where there has been no recorded use of this package thus far, we were successful. To the extent that we were

able to fully utilize the capabilities of this package, we are not so certain. This package of canned statistical programs for the computer shows promise and should be exploited further by libraries.

Finally, we are even more convinced than we were at the beginning of this investigation that the tested research methodologies used successfully for many years by the market researcher are appropriate for the study of library users and offer the investigator of information systems a set of valid proven techniques. More of these proven techniques should become part of the library invesigator's repertoire.

V. LITERATURE REVIEW

In order to locate any material which might be considered germane to this study a literature search was made through Library Literature (back to 1960), Information Science Abstracts (back to 1966), Library & Information Science Abstracts (back to 1969) and the Annual Review of Information Science and Technology (52) together with the reviews and bibliographies noted below. The number of library/information system "user" studies, both published and unpublished from this country and abroad is prodigious and scattered throughout the literature of information science. Some idea of the magnitude of this body of literature can be obtained from the numerous bibliographies (21, 28, 38, 27, 51) and reviews (22, 23, 59, 60, 64, 24, 25, 26, 29, 37, 40, 47, 68) devoted to information use and users. Indeed, so large has this body of literature become that one article (67) appeared recently on the "... problems encountered in comparing user studies..." of the scientist and of the social scientist as information users.

In reviewing the literature covering "user" studies, one of the first distinctions which the reader must make is that between studies which examine the use made of an information system and studies which examine the user who has become or who wishes to become involved with that system. The authors have found it almost impossible to separate categorically studies which analyze the ways in which researchers locate, use or disseminate information from studies which examine the user per se, his demographic characteristics, motivation, behavior, and attitudes. Most of the studies seen were primarily concerned with how and in what ways an information system was being used rather than with the user and his feelings, behavior, or attitudes toward that system.

Unfortunately, there is no clear line of demarcation between the two and in many of the user studies they overlapped in considering not only what the information user does to locate needed information, but his characteristics as well as his attitudes and behavior toward the information system itself.

Another distinction which the reviewer of use studies must keep in mind is that between research into the ways in which information is acquired from the system and studies which examine the ways in which information is passed from the system to the user. The difference is a matter of perspective and is well illustrated in the distinction which Paisley (26, p. II-60) makes between research whose primary concern is with the information gathering processes and research concerned with the information dissemination processes in his review of scientific information flow studies.

There is yet another category of use studies and these are concerned with research into the attitudes of the user toward the information system itself. Such studies examine the highly subjective reactions of an individual to the information system at his dispoal and attempt to quantify or measure these reactions often using very sophisticated techniques. Because of the many difficulties encountered in behavioral research and the complexity of its measuring techniques they have remained largely untried in the world of information systems. Interestingly enough Triandis (19) brought several of these attitude scaling techniques (Thurstone, Likert, Guttman, and Edward and Kilpatrick) to the attention of the information science profession as early as the late 1960's.

After reviewing the literature devoted to user studies, it was apparent to this observer that they included a very broad spectrum of research efforts covering such things as: the use made of a collection, the amount of time

spent reading, the number of journals read by a consumer, information practices and discipline related differences, demographic characteristics of the user as they relate to the literature itself, the information gathering and or reading habits of the user, and citation counting. Most of these user studies measured variables which were easily quantified as for example, how many people used a given information system, how far they lived from the information system, how often they visited a library/information service, or what types (by sex, income, education, age) of users were there, at a very unsophisticated level.

A third distinction which must be made while reviewing the literature of "user" studies is that betweeen those attitudes which develop toward specific information sources (bibliographic tools, individuals, or reference stations) within the system and those attitudes which are manifest toward the information system as an entity itself. In this study, the authors have targeted upon specific information services/sources within the information system totality. No attempt was made to extrapolate these unit measures to the entire system beyond the very general criteria suggested by the questionnaire.

In this wealth of user studies only a relative handful have called attention to the need for examining the user's attitude toward the information service he is using (30, 31, 36, 41, 42, 43, 45, 48, 50, 53, 54, 56, 58, 61, 62, 65, 66). Of these an even smaller number have drawn on the more sophisticated techniques available to the market researcher and social scientist. Hopefully, this review will bring the necessity for more sophisticated research methodologies to the attention of the profession, especially those which examine user attitudes.

Most user studies have emphasized the descriptive rather than analytical in their reporting and were conducted by practicing librarians or information scientists with little or no attention to the adoption of a rigorous methodology. There have been some notable exceptions, but for the most part studies of the user have devoted little attention to their methodology. The consequences of this as Bates (28) and Auerbach (64) point out have been that most user studies are inadequate from a methodological standpoint. Indeed, one of the greatest hinderances to an adequate description of the information system user has been the absence of any standardized, replicatable, pre-tested methodology (45). Bundy and Wasserman (32, p. 152) call the lack of standardized research instruments a major impediment to the research methodology of librarianship/ information science.

Ford also touches this point in one of the better surveys of current research into user behavior. In this review he draws "...together some threads of research of potential application in university libraries..." and points to "...a general lack of theory and an equal lack of adequate definition of concepts..." (68, p. 85 & 100) in the examination of user behavior. These are serious impediments to the development of an adequate methodology for studying the information system user and must be remedied before any solutions can be hoped for.

Although the technique suggested in this study (a controlled distribution self-administered questionnaire) has been tried many times by the information science profession, user attitude measurement and the study of user behavior/ attitudes has not been as pervasive. Ohio State University Library (65) tried a similar survey in 1966 with the very important distinction that OSU passed their questionnaire out to users in the library while CSU distributed theirs in the classroom/laboratory.

In 1964, the Libraries Staff Association

(43) of Purdue University produced a study of user attitudes using a scaling technique designed by Remmers and Kelly (44) in 1934. Later, in reviewing this research, John H. Moriarty (18, p. 26) commented that, "... C.E. Osgood's Semantic Differential would probably have been a better instrument to use though a more costly and time consuming one..." In this same paper, Moriarty draws attention to the fact that the independent variables of school, class, library use, academic achievement are not as important in determining attitude toward an institution as might be supposed and he warns of a "... general-cultural pre-disposition to respond favorably to the institution of libraries (that could mask)* ... subordinate, more specific effects..." (18, p. 26). In another study North (53) reports on the impact made by a new campus Learning Center at Oklahoma Christian College. The author surveyed students and faculty in 1967 to discover their attitudes toward the new facility using the semantic differential and the College and University Environment Scales. The SC instrument used here was composed of 24 concepts each using nine different seven-point scales.

In 1961, Penland (39) while working on a Ph.D., used the Guttman/Cornell scaling technique to survey the attitudes concerning the adult education functions of the public library held by management personnel in Michigan Public Libraries. Later, Evans (54) while doing research for his thesis at the University of California, Berkeley, used mail questionnaire to administer a Likert attitude scale surveying the attitudes of middle class urban adults toward the public Library in Oceanside, California.

Rosenberg (48) used the Kendall Coefficient concordance to measure the degree of agreement among his respondents in their rating of eight selected information gathering (behavioral) preferences and concluded that; 1) ease

* the remarks in brackets were added by this author.

of use is the most important design parameter for an industrial information system and 2) that user surveys can accomplish much the same results with a well-designed questionnaire as they can using direct observation, but with less effort provided a sufficient sample is drawn.

More recently Leonard, Maier, and Dougherty (58) have studied academic library users by measuring faculty attitudes and levels of awareness toward the resources and services offered. These investigators used a scaled questionnaire distributed to a randomly chosen sample of names with followup letters. Their description of how the survey instrument and methodology evolved is an excellent guide to the pitfalls inherent in user analyses and in the construction of viable survey instruments.

On a much broader scale, Mendelsohn and Wingerd (45), two social scientists from the University of Denver, conducted a national survey using a set of prescribed questions in an interview conducted by the Gallop poll organization to discover attitudes toward libraries in the United States. In this report the authors call for a "...national library usage research body that will serve as one recognized resource for usage research throughout the land..." (45, p. IV-3) as well as a standardized set of questions, definitions and research procedures for use by investigators in this field.

In Europe Line (41) conducted a survey during 1962 to determine the attitudes held by students toward the Southampton University Library and its services. In discussing his use of this questionnaire, Line pointed out that attitude scaling techniques would have been preferable. A follow-up survey using almost the same questionnaire was conducted by Line and Tidmarsh (42) in 1965 with equal dissatisfaction in their survey instrument.

The most common instruments for the study of the information user and his needs have been the direct distribution or mailed questionnaire, diary studies,

and interviews (33,25) with the questionnaire probably the most widely used (32, p. 151 and 35, p. 6) of the three. Davis (35) has added to these direct observation and the critical incident technique while pointing out the need to be concerned with future and potential users as well as with the present user. Paisley (26) in one of the better reviews of this literature devotes an excellent chapter to the problems of developing a rigorous methodology and then discusses each of the above techniques pointing out in some detail the difficulties, reliability, and problems of interpretation inherent in each survey method. In addition, he has annotated many of the references to this literature in a terse and relevant fashion offering the reader evaluations which could not easily be obtained elsewhere. Paisley's work is an excellent point of departure for a review of this literature and should be more widely available.

Weinstock (29, p. V-2) has called attention to the techniques of user check off sheets and citation analyses in his catalog of methodologies while rating some of the more common inadequacies of earlier studies; 1) insufficient detail to allow comparison of populations, 2) the collection of population samples which were not representative, 3) studies do not distinguish between user needs and wants, 4) seldom is a study related to other studies in such a way that comparisons can be easily made, 5) few studies examined actual behavior under varying conditions, and 6) studies were often sponsored by institutions with vested interests allowing their findings to be subject to serious challenges.

Although mentioned a number of times in the marketing literature, only recently has Osgood's (55) semantic differential technique been put to use in the information sciences. Despite some challenges (49), from investigators

in the social sciences, it has nevertheless remained a viable and useful technique with a number of references in the literature devoted to libraries and information science.

Wasserman and Bundy (32) cite Osgood's classic text The Measurement of Meaning (11) in the bibliography which accompanies their reader on research methodology. Rose (34, p. 31) in an article on innovation and evaluation of library services suggests that attitude scales such as Osgood's semantic differential be combined with cost studies when evaluating new services for an information system. Voos (14) in one of the best methodological surveys of the user and his information requirements refers in a chapter titled "Conclusions and Recommendations", to the need for a new set of attitude measuring scales similar to the Likert or to the semantic differential which can be used in the information transfer setting. Voos (14, p. 67) carefully points out, however, that many of the existing attitude measuring scales whose use has been validated in other areas have very little relevance to the problems encountered in the information transfer setting.

Line (50) in another excellent text on library survey methodologies drawn attention the the Thurstone, Likert, and Guttman attitude scales noting their complexity and the many problems which will be encountered in their design. Line's point that the use of such a technique tells us nothing about the library itself but is instead an attempt to measure user reaction or impact is especially pertinent for this investigation.

More recently, Frierson and Atherton (17) report the use of a semantic differential instrument designed by Katzer to measure user reaction to SUPARS (Syracuse University Psychological Abstracts Retrieval Service). The

authors judged it to be a reliable instrument for measuring user reactions to any computer-based information retrieval system on the basis of returns from 16 out of 20 registrants, although the evidence to support such a claim was not included in their report. Twenty concepts were coded on a one to seven scale with one indicating the "...most positive reaction possible, a score of seven indicating the most negative reaction possible, and score of four indicating a neutral reaction..." (17, p. 66). Katzer (20) later discusses the SD instrument he developed for Frierson and Atherton (supra) in more detail and points out the need for further testing of its general applicability to on-line systems; although he considers it to be a reliable measurer of user attitudes. Katzer goes on to point out, however, that the SD developed for SUPARS "...may not be applicable to all on-line interactive information retrieval systems..." (20, p.122) and calls for replication of the instrument he used in similar retrieval systems elsewhere.

In concluding this review of the literature the authors feel compelled to note the work of Mortimer Taube (57) which challenges the value of any use studies "...as direct guides to the design of information systems..." (57, p. 58). Taube holds that providing information services is a professional activity and, therefore, cannot be measured adequately with use studies. He makes a number of interesting points, most of which center on the methodological inadequacies of prior use studies. Needless to say this is not a viewpoint shared by the author who contends that methodological refinements will enable, if indeed they have not already done so, the scientific investigator to obtain a rigorous examination of the user and/or of the information system itself.

Table 1

QUESTIONNAIRES SENT & RETURNED COMPARED AGAINST ENRO

Questionnaires / College	Actual Student Enrollment[2] Absolute	% of total Enrollment	Student Enrollment(%) W/O HSS & BUS	Total Questionnaires Sent
Agriculture	822	5.15%	9.69	1,120
Forestry	1,371	8.6	16.16	465
Engineering	1,134	7.11	13.37	710
Vet. Med.	1,291	8.10	15.22	966
Nat. Sciences	2,486	15.59	29.31	2,413
Home Economics	1,379	8.65	16.26	275
Humanities & Social Sciences	5,814	36.46		
Business	1,646	10.32		
TOTAL	15,943	99.98%	100.01%	5,949

Facu
Tota

[1]Adjusted Frequency % does not include Faculty responses. Data may be seen on p. 508D.

[2]Headcount as of beginning of Winter Quarter, 1972.

[3]Faculty and other 305 $\frac{305}{5949} = .05\%$

Reference: Raw data may be seen on p. 506D

Table 1

T & RETURNED COMPARED AGAINST ENROLLMENT BY COLLEGE

nt Enrollment(%) HSS & BUS	Total Questionnaires Sent	% of Student Returns From Each College	Student Returns With Bus & HSS Absolute	% Adj. Frequency[1]	Student Returns W/O Bus & HSS Absolute	% Adj. Frequency[1]
9.69	1,120	24.6%	276	16.7%	276	19.4%
16.16	465	46.5	216	13.1	216	15.2
13.37	710	19.7	140	8.5	140	9.8
15.22	966	24.2	234	14.2	234	16.4
29.31	2,413	14.9	359	21.8	359	25.2
16.26	275	71.3	196	11.9	196	13.7
			201	12.2		
			28	1.7		
100.01%	5,949		1,650	100.10%	1,421	99.70%
		Faculty and other	305[3]			
		Total returns	1,955			

. Data

Table 2

DISTRIBUTION OF QUESTIONNAIRE RESPONSE BY CLASS IN SCHOOL FOR ALL COLLEGES

Ref: Raw Data may be seen on p. 506D

CLASS	PERCENTAGE[1] OF RESPONSES	ACTUAL[2]
Freshmen	22.9%	24.19%
Sophomores	16.2	20.20
Juniors	18.9	18.28
Seniors	21.0	21.62
Graduates	20.0	12.37
Others	0.9	3.33
	99.90	99.99

[1]Does not include faculty responses.

[2]Headcount as of beginning of winter quarter, 1972

Table 2a

DISTRIBUTION OF QUESTIONNAIRE RESPONSE BY CLASS IN SCHOOL FOR EACH COLLEGE

Ref: Raw Data May Be Seen on p. 433D

COLLEGE / CLASS	COUNT / ROW % / COLUMN %	AG	FOREST	VET. MED	NAT. SCI	ENG.	HE	HSS	BUS.
FRESHMAN	377 23% 	44 11.7% 16.0%	62 16.4% 28.8%	35 9.3% 15.3%	93 24.7% 26.2%	17 4.5% 12.2%	30 8.0% 15.3%	83 22.0% 41.3%	13 3.4% 46.4%
SOPHOMORE	266 16.2% 	43 16.2% 15.6%	27 10.2% 12.6%	37 13.9% 16.2%	53 19.9% 14.9%	18 6.8% 12.9%	43 16.2% 21.9%	41 15.4% 20.4%	4 1.5% 14.3%
JUNIOR	309 18.9% 	52 16.8% 18.9%	39 12.6% 18.1%	34 11.0% 14.8%	71 23.0% 20.0%	21 6.8% 15.1%	55 17.8% 28.1%	32 10.4% 15.9%	5 1.6% 17.9%
SENIOR	346 21.1% 	80 23.1% 29.1%	38 11.0% 17.7%	18 5.2% 7.9%	79 22.8% 22.3%	29 8.4% 20.9%	59 17.1% 30.1%	37 10.7% 18.4%	6 1.7% 21.4%
GRADUATE	328 20.0% 	56 17.1% 20.4%	45 13.7% 20.9%	98 29.9% 42.8%	59 18.0% 16.6%	54 16.5% 38.8%	9 2.7% 4.6%	7 2.1% 3.5%	0 0.0% 0.0%
OTHER			4 36.4% 1.9%	7 63.6% 3.1%					

Table 3

DISTRIBUTION OF FACULTY/STUDENT POPULATIONS

FOR COLORADO STATE UNIVERSITY - 1971/72

COLLEGE	FACULTY *	%	STUDENTS +	%
Agriculture	110	9.45%	822	5.15%
Forestry	57	4.89	1,371	8.6
Vet. Medicine	141	12.11	1,291	8.10
Natural Sciences	230	19.76	2,486	15.59
Engineering	173	14.86	1,134	7.11
Home Economics	59	5.07	1,379	8.65
Humanities & Social Sciences	339	29.12	5,814	36.46
Business	55	4.72	1,646	10.32
TOTAL	1,164 *	99.98%	15,943 +	99.98%

* Headcount as of July 1, 1971

\+ Headcount as of winter quarter, 1972

STUDENTS	BY CLASS	%
Freshmen	3,857	24.19%
Sophomores	3,221	20.20
Juniors	2,915	18.28
Seniors	3,447	21.62
Graduates	1,972	12.37
Other	531	3.33
TOTAL	15,943 +	99.99%

Table 4

PREFERRED PERIODS OF LIBRARY USE: WEEKDAYS
(Adjusted Frequency Responses) +

Ref: Raw Data may be seen on P. 518Dff

TIME	FIRST CHOICE (Rank) +	SECOND CHOICE (Rank) +	THIRD CHOICE (Rank) +	SUM OF THE 1,2,3 CHOICES
8:00 - 10:00 a.m.	15.4% (2)	6% (7)	7.1% (7)	16
10:00 - 12:00 noon	12.9 (4)	12.7 (5)	10.1 (6)	15
12:00 noon - 3:00 p.m.	13.4 (3)	12.9 (4)	12.5 (4)	11
3:00 - 5:00 p.m.	10.4 (5)	16.4 (3)	18.7 (2)	10
5:00 - 7:00 p.m.	5 (7)	10 (6)	11.2 (5)	18
7:00 - 10:00 p.m.	36.0 (1)	20.4 (1)	19.4 (1)	3
10:00 - midnight	5.1 (6)	19.7 (2)	15.4 (3)	11
Midnight - 8:00 a.m.	1.9 (8)	1.8 (8)	5.7 (8)	24

+ Does not include blank returns

Table 5

SUMMARY OF ALL ADJUSTED FREQUENCY RESPONSES TO QUESTION 7:
"HOW I USE THE LIBRARY"

Ref: Raw Data may be seen on p. 530Dff

VARIABLE	Very Often	Often	Occas.	Seldom	Rarely	Never	Blank Replies
7a. To study my own books or notes	10.0%	17.2%	24.3%	12.2%	15.7%	20.5%	1.9%
7b. To read reserve books	2.8	10.7	26.4	18.6	23.0	18.5	2.0
7c. To consult library materials (not including reserve books) for class	8.1	27.8	34.7	12.8	10.5	6.2	1.1
7d. To consult library materials for pleasure	3.3	13.3	30.1	19.0	20.1	14.2	1.4
7e. To check material out of the library	7.7	20.1	35.3	13.8	13.7	9.2	0.9
7f. To read newspapers	2.8	6.1	11.2	12.2	22.6	45.1	1.5

Table 6

REPORTED FREQUENCY OF LIBRARY VISITS*

Ref: Raw Data may be seen on p. 554D

Frequency of Visits / Time Interval	Once	Twice	Three Times	More	Misc.	Total
1. Daily	13.0%	6.5%	1.2%	1.1%		21.8%
2. Weekly	12.3	15.7	15.7	5.0		48.7
3. Monthly	3.1	5.7	5.4	2.2		16.4
4. Quarterly	1.7	1.7	1.8	1.0		6.2
5. No more than I can help it					6%	6.0
6. Never					0.8	0.8

*Adjusted for returns which were blank

Table 7

ADJUSTED FREQUENCY RESPONSES TO SELECTED LIBRARY SERVICES AT THE SCIENCE REFERENCE DESK

Ref; Raw Data may be seen on P. 557Dff

RATINGS / Service	Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable	No Opinion	Blank*
10a. Location Assistance: "Where will I find..."	11.5%	28.8%	26.1%	22.9%	6.5%	1.9%	1.1%	1.1%	32.6%
10b. Availability Assistance: "Does the Library have..."	7.4	21.4	29.1	26.7	10.1	2.5	1.5	1.3	40.2%
10c. Guidance in the Use of Bibliographic Tools	7.5	20.2	30.9	27.6	7.8	2.4	1.6	1.8	49.8
10d. Courtesy toward the User	13.8	26.8	31.9	19.8	4.2	1.1	1.2	1.1	32.7
10e. Group Lecture Tours	6.9	12.5	18.5	32.5	10.3	2.8	5.00	11.5	74.6
10f. Answering the Phone	4.9	15.6	26.8	35.0	4.7	2.2	3.0	7.9	74.0

10g. Availability of Librarians	Always	Most of the time	Sometimes	Seldom	Never	No Opinion	Blank
	6.0	53.9	28.7	7.8	1.7	0.7	40.4

* Blank replies are not part of the adj sted frequency responses. They represent the % of the total replies returned blank.

Table 8

RESPONSES TO "OTHER" CATEGORY IN QUESTION 7,
"WHAT WAYS DO YOU USE THE LIBRARY?"

Ref: Raw Data may be seen on P. 542D

Activity *	Percent
Sleep	8.7
Read magazines	11.4
Use as a meeting place	7.8
To use the Xerox	10.8
To use the dictionary	3.9
To do research for a paper	9.0
To use the micromaterials	2.4
To listen to tapes	7.2
Miscellaneous uses	38.9
Blank	82.9 *

* Relative frequency scale showed 82.9% did not answer this part (7g) of Question 7.

Table 9

SUMMARY OF ADJUSTED FREQUENCY RESPONSES TO SELECTED LIBRARY SERVICES

Ref: Raw Data may be seen on p. 544Dff

RATING Service	Excellent	Good	Fair	Not Good	Fairly Poor	Poor	No Opinion	Blank Replies
8a. Having the material I need	4.5%	19.6%	24.9%	19.1%	15.2%	9.4%	7.3%	1.8%
8b. Hours of Opening	15.4	30.6	22.0	12.8	7.2	4.2	7.9	1.8
8c. Help from the Loan Desk	15.6	27.2	18.0	11.0	6.0	3.5	18.7	2.1
8d. Help from the first floor Reference Desk	17.4	25.2	15.7	9.3	4.9	2.7	24.8	2.2
8e. Help from the Science Reference Desk	17.7	24.1	13.2	6.6	3.3	2.4	32.8	2.7

Table 10

A CROSSTABULATION SUMMARY OF THE RESPONSES (%) TO QUESTION

FREQUENCY WITH WHCIH YOU USE THE LIBRA

Ref: Raw Data May Be Seen on p. 408

		Absolute Number	Very Often %	Often %
7a. To Study Own Books or Notes	Students	1642	11.4%	19.5%
	Faculty	261	1.1	3.8
7b. To Read Reserve Books	S	1639	3.1	12.0
	F	261	0.8	2.7
7c. Consult Library Materials For Class and/or Research	S	1640	7.4	26.0
	F	278	12.6	38.1
7d. Consult Library Materials For Pleasure	S	1638	3.5	12.9
	F	274	1.8	15.3
7e. Check Material Out of Library	S	1642	6.5	18.3
	F	281	15.3	30.6
7f. Read Newspapers	S	1639	3.1	6.7
	F	272	1.1	2.6

Table 10

RY OF THE RESPONSES (%) TO QUESTION 7 "PLEASE INDICATE THE
QUENCY WITH WHCIH YOU USE THE LIBRARY TO . . ."

ef: Raw Data May Be Seen on p. 408ffD

solute umber	Very Often %	Often %	Occasionally %	Seldom %	Rarely %	Never %
1642	11.4%	19.5%	26.7%	12.8%	15.5%	14.1%
261	1.1	3.8	10.3	8.4	16.9	59.4
1639	3.1	12.0	27.5	19.7	21.7	16.0
261	0.8	2.7	19.9	13.0	30.7	33.0
1640	7.4	26.0	34.1	14.2	11.3	7.0
278	12.6	38.1	37.8	4.7	5.8	1.1
1638	3.5	12.9	28.0	20.2	20.0	15.4
274	1.8	15.3	42.3	13.1	20.8	6.6
1642	6.5	18.3	34.1	15.0	15.5	10.6
281	15.3	30.6	42.3	7.5	3.9	0.4
1639	3.1	6.7	11.3	13.0	22.4	43.6
272	1.1	2.6	10.7	8.1	23.9	53.7

Table 11

COMPARISON OF PLACE OF RESIDENCE WITH HOURS SPENT IN NON-ACADEMIC ACTIVITIES

Ref: Raw Data May Be Seen on p. 452 D

Count Row % Cal %	None	10 hrs. or Less	11-20 hrs.	20 hrs. or More	Row Total
Off Campus	319 28.9% 57.6%	370 33.5% 70.7%	265 24% 73.6%	150 13.6% 84.7%	1104 68.4%
On Campus	233 45.9% 42.1%	153 30.1% 29.3%	95 18.7% 26.4%	27 5.3% 15.3%	508 31.5%
Total					1614

Table 12

SUMMARY OF HIGH RATINGS BY CLASS FOR EACH SERVICE OFFERED BY THE SCIENCE REFERENCE UNDER QUESTION 10 "HOW WOULD YOU RATE THE FOLLOWING SERVICES..."

Ref: Raw Data May Be Seen on p. 172D, 250ff D

SERVICE	Absolute Responses	Frosh.	Soph.	Jr.	Sen.	Grad.	Other
10a. Location Assistance	1083	194 Acceptable 32. %	170 Acceptable 25.9%	199 Acceptable 28.1%	237 Very Good 31.6%	270 Very Good 33. %	13
10b. Availability Assistance	954	167 Acceptable 32.9%	146 Acceptable 32.9%	164 Acceptable 30.5%	211 Good 27. %	255 Good 32.5%	11
10c. Guidance In Use of Bibliographic Tools	797	128 Acceptable 34.4%	122 Acceptable 39.3%	134 Acceptable 34.3%	182 Good 35.2%	224 Good 33.5%	7
10d. Courtesy Toward User	1073	189 Good 31.7%	163 Good 35.0%	197 Good 35.0%	236 Good 36.0%	276 Very Good 33.3%	12
10e. Group Lecture Tours	429	78 Acceptable 42.3%	71 Acceptable 40.8%	61 Acceptable 36.1%	96 Acceptable 36.5%	117 Very Good & Acceptable 24.8%	6
10f. Answering the Phone	385	82 Acceptable 42.7%	62 Acceptable 54.8%	70 Acceptable 37.1%	87 Acceptable 36.8%	81 Good 32.1%	3
10g. Availability of Librarian	958	171 Most of the time 42.7%	152 Most of the time 42.8%	169 Most of the time 47.3%	208 Most of the time 51.9%	245 Most of the time 67.8%	13

Table 13

COMPARISON OF FACULTY/STUDENT RESPONSES (%) TO QUESTION 8

"HOW WOULD YOU EVALUATE THE FOLLOWING SERVICES OFFERED BY THE LIBRARY..."

Ref: Raw Data May Be Seen on p. 416ff D

SERVICE		Absolute Response	Excellent	Good	Fair	Not Good	Fairly Poor	Poor	No Opinion
8a. Having the material I need	F	278	4.3	28.8	34.2	15.8	10.4	5.	1.4
	S	1627	4.5	18.1	23.4	19.7	16.0	10.2	8.2
8b. Hours of Opening	F	278	25.5	38.8	17.3	7.2	3.6	1.8	5.8
	S	1626	13.7	29.2	22.9	13.8	7.8	4.6	8.1
8c. Help From the Loan Desk	F	281	23.5	34.5	17.8	8.9	3.9	1.1	10.3
	S	1617	14.3	26.0	18.1	11.4	6.4	3.9	19.9
8d. Help From the First Floor Reference Desk	F	281	24.6	32.7	12.8	8.2	2.8	2.8	16.0
	S	1616	16.2	23.9	16.3	9.5	5.3	2.6	26.2
8e. Help From the Science Reference Desk	F	281	27.8	36.7	10.3	3.9	3.6	1.4	16.4
	S	1606	16.1	21.9	13.8	7.0	3.2	2.4	35.7

Table 14

CLASS WITH HIGHEST RESPONSE RATE (%) IN EACH RATING CAT

Ref: Raw Data May Be Seen on p. 165 Dff

SERVICE	RATING CATEGORY Excellent	Good	Fair	Not Good	
8a. Having the Material I Need	Graduate 27.0%	Graduate 31.2%	Graduate 25.9%	Freshmen 23.2%	
8b. Hours of Opening	Freshmen 28.1%	Graduate 21.9%	Seniors 22.8%	Seniors 22.1%	
8c. Help From the Loan Desk	Graduate 36.4%	Seniors 24.9%	Freshmen 23.5%	Seniors 26.4%	
8d. Help From the First Floor Reference Desk	Graduate 24.8%	Graduate 25.4%	Graduate 25.5%	Seniors 26.0%	
8e. Help From the Science Reference Desk	Graduate 38.1%	Graduate 33.4%	Seniors 24.8%	Juniors 28.3%	

Table 14

WITH HIGHEST RESPONSE RATE (%) IN EACH RATING CATEGORY

Ref: Raw Data May Be Seen on p. 165 Dff

RATING CATEGORY					
lent	Good	Fair	Not Good	Fairly Poor	Poor
ate %	Graduate 31.2%	Graduate 25.9%	Freshmen 23.2%	Seniors 28.0%	Seniors 26.1%
men %	Graduate 21.9%	Seniors 22.8%	Seniors 22.1%	Seniors 22.7%	Seniors 34.7%
ate 4%	Seniors 24.9%	Freshmen 23.5%	Seniors 26.4%	Seniors 26.5%	Freshmen 29.0%
uate 8%	Graduate 25.4%	Graduate 25.5%	Seniors 26.0%	Juniors 29.4%	Sophomore 26.2%
uate 1%	Graduate 33.4%	Seniors 24.8%	Juniors 28.3%	Juniors 26.9%	Freshmen 24.4%

APPENDIX A

LIBRARY USER ANALYSIS

This questionnaire is intended to assist the Libraries in evaluating and improving services available at the Wm. E. Morgan Library. Your cooperation in filling it out will help us better meet the needs of our patrons. If you have already completed a copy of this questionnaire, please return the blank form to the R/D Division, Room 2c, Morgan Library. Thank you.

1. Type of user

   Faculty _____ Student _____ Other _____

2. If you are a student, please answer the following questions.
   If you are not a student, then skip to question number 3.
   a. Class rank:
      Fresh. _____ Soph. _____ Jr. _____ Sen. _____ Grad. _____ Other _____
   b. College in which you are enrolled:
      Agriculture _____ Natural Sci. _____ Hum. & Soc. Sci. _____
      Forestry _____ Engineering _____ Business _____
      Vet. Med._____ Home Economics ___
   c. What is your major(s) within your College.
      1. _____ 2. _____ 3. _____
   d. How many hours each week do you spend in non-academic activities such as employment, volunteer work, etc. (Do not include sleeping, eating and recreation time.)
      None _____
      10 hours or less a week _____
      Between 11 and 20 hours a week _____
      More than 20 hours a week _____

3. How long have you been at CSU.
   12 months or less _____ Between 13 months and 35 months _____
   Three years or more _____

4. When was the last time you were in the library. Check one.
   Today _____ Within the previous 7 days _____
   More than a week ago _____ More than a month ago _____

5. Residence:
   Off campus _____ On campus _____

6. What time of day do you prefer to use the library? Please check three preferred times in the order of their preference for both weekdays and weekends. Preferred time is number 1, second best is number 2, and third choice is number 3.

Weekdays:		Weekends:	
8:00 a.m. to 10:00 a.m.	_____;	8:00 a.m. to 10:00 a.m.	_____;
10:00 a.m. to 12:00 noon	_____;	10:00 a.m. to 12:00 noon	_____;
12:00 noon to 3:00 p.m.	_____;	12:00 noon to 3:00 p.m.	_____;
3:00 p.m. to 5:00 p.m.	_____;	3:00 p.m. to 5:00 p.m.	_____;
5:00 p.m. to 7:00 p.m.	_____;	5:00 p.m. to 7:00 p.m.	_____;
7:00 p.m. to 10:00 p.m.	_____;	7:00 p.m. to 10:00 p.m.	_____;
10:00 p.m. to Midnight	_____;	10:00 p.m. to Midnight	_____;
Midnight to 8:00 a.m.	_____;	Midnight to 8:00 a.m.	_____;

7. Please indicate the frequency with which you use the library to:

(a) Study my own books or notes

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

(b) Read reserve books

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

(c) Consult library materials (not including reserve books) for classroom or research needs w/o checking them out of the library.

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

(d) Consult library materials for pleasure or to follow an interest outside the classroom.

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

(e) Check material out of the library

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

(f) Read newspapers

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

(g) Other uses (fill in) _____

Very Often	Often	Occasionally	Seldom	Rarely	Never
_____	_____	_____	_____	_____	_____

8. How would you evaluate the following services offered by the library.

a. Having the material I need

Excellent _____ _____ _____ _____ _____ _____ Poor _____ No Opinion

1 2 3 4 5 6

b. Hours of Opening

Excellent _____ _____ _____ _____ _____ _____ Poor _____ No Opinion

1 2 3 4 5 6

c. Help from the Loan Desk

Excellent _____ _____ _____ _____ _____ _____ Poor _____ No Opinion

1 2 3 4 5 6

d. Help from the First Floor Reference Desk

Excellent _____ _____ _____ _____ _____ _____ Poor _____ No Opinion

1 2 3 4 5 6

e. Help from the Science Reference Desk

Excellent _____ _____ _____ _____ _____ _____ Poor _____ No Opinion

1 2 3 4 5 6

9. How often do you go to the library (check the one most appropriate).

Daily	Once _____	Twice _____	Three Times _____	More _____
Weekly	Once _____	Twice _____	Three Times _____	More _____
Monthly	Once _____	Twice _____	Three Times _____	More _____
Quarterly	Once _____	Twice _____	Three Times _____	More _____

No more than I can help it _____

Never

10. How would you rate the following services offered at the Science Reference Desk. Please mark an X on the scale at that point which best describes your reaction to this service. Rate only those services with which you have had direct experience. Make no mark after any service you have not used.

a. Location assistance: Answers to question "Where will I find ....."

Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable

b. Availability assistance: Answers to question "Does the library have..."

Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable

c. Guidance in Use of Bibliographic Tools.

Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable

d. Courtesy toward User.

Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable

e. Group Lecture Tours of the Library.

Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable

f. Answering the phone.

Extremely Good	Very Good	Good	Acceptable	Poor	Very Poor	Unacceptable

g. Availability of a librarian.

Always	Most of the time	Sometimes	Seldom	Never

11. Have you had occasion to use the list of journals on computer print-out called the Serial Book Catalog? If answer is no, then skip to question 14.

Yes _____ No _____

12. If yes, at what location did you use this list. If used at more than one location, check only the location used most often.

Reference Desk (First Floor) _____ Documents Dept. _____ ERC _____
Science Reference (Second Floor) _____ Atmospheric Sciences _____

13. How often do you use the Serial Book Catalog?

Very Often	Often	Occasionally	Seldom	Rarely	Never	Unknown

14. In your opinion is the demand for library service at the Science Reference Desk

Increasing _____ Decreasing _____ About the same _____ No Opinion _____

15. The most recent issue of the journal I need is available on the steel display shelves

Always	Usually	About 50% of the time	Seldom	Never	No Opinion

16. The journal I need is in the bindery

Always	Usually	Sometimes	Seldom	Never	No Opinion

Thank you.

OFFICE MEMO

Appendix B

TO: **Date**

FROM: R.W. Burns, Librarian For
Research and Development

SUBJECT: Enclosed Questionnaires

REMARKS:

Enclosed are copies of the Library User Analysis we discussed at the Department Heads meeting of February 11. Please distribute as follows:

1) One copy to each faculty member in your Department.

2) Copies in classes in order to achieve a representative sample from each grouping (Fresh., Soph., Jr., Sen., and/or Grad. in so far as this is possible) of 15% or 50 people whichever is greater.

3) We would appreciate it if you would collect these questionnaires after class and return them to this office in the envelopes provided for this purpose.

Thank you,

Robert W. Burns, Jr.
Librarian for R/D
Rm 2c
William E. Morgan Library

Letter of Instructions Sent With Questionnaire

COLORADO
STATE UNIVERSITY
the libraries
FORT COLLINS
COLORADO
80521

Appendix B

February 23, 1972

Dr. Lloyd C. Faulkner, Head
Department of Physiology & Biophysics
Room 101A Physiology
CSU Campus

Dear Dr. Faulkner:

Enclosed are copies of the Library User Analysis we discussed over the phone recently. Please distribute as follows:

1) One copy to each faculty member in your Department.

2) Copies in classes in order to achieve a representative sample from each grouping (Fresh., Soph., Jr., Sr., and/or Grad. insofar as this is possible) of 15% or 50 people whichever is greater.

3) We would appreciate it if you would collect these questionnaires after class and return them to this office in the envelopes provided for this purpose. Please return all questionnaires by March 10. Thank you.

Sincerely,

Robert W. Burns, Jr.
Librarian for R/D
Room 2C
William E. Morgan Library

RWB:jeg

Enc.

Appendix C

DISTRIBUTION OF

SCIENCE REFERENCE QUESTIONNAIRE

COLLEGE & DEPARTMENT	# ASKED FOR	# SENT E	# SENT Q	# SENT DATE	# RETURNED Q	# RETURNED DATE	NOTES
A. Agriculture							O.K. as per Dept. Heads Meeting, 15 Feb 72, 3:00.
Agronomy	350	6	365	24 Feb			
Horticulture	220	5	230	24 Feb			
Entomology	75	4	80	23 Feb			
Avian Sciences	75	4	80	23 Feb			
Animal Sciences	350	6	365	24 Feb			
B. Forestry	450	16	465	24 Feb			Send all directly to Dr. D. L. Gilbert, Rm. 203, College of Forestry and Natural Resources.
C. Engineering							O.K. as per Dept. Hds. Mtg. 11 Feb.
Atmospheric Sciences	90	3	95	23 Feb			Send to: Dr. Elmar R. Reiter
Civil Engineering	75	3	*80	23 Feb	+100		*Dr. John W. Fead 100 more sent 29 Feb
Electrical Engineering	75	3	*80	23 Feb	+100		*Dr. R. J. Churchill 100 more sent 29 Feb C102 Engineering
Engineering Science	75	4	100	23 Feb			Dr. Jack E. Cermak B106 Engineering
Mech. Engineering	75	4	80	23 Feb			Dr. Knox Millsaps 105 Engineering
Engineering Research	75	3	75	23 Feb			Dr. Daryl Simons
D. Vet. Med							Met with Tietz 14 Feb 72.
Anatomy	86	4	86	23 Feb			Kainer 239 Vet Med.
Clinical Sciences	200	4	210	23 Feb			Dr. Donald G. Lowe 108 Vet Hosp't
Microbiology	300	10	300	24 Feb			Dr J.E. Ogg D 116 Micro
Pathology	100	4	110	23 Feb			Send to Dr. Alexander.
Physiology & Biophy.	500	4	75	1 Mar	+125 on 3 Mar		Dr L.C. Faulkner 101 A Physiology
Radiology & Rad.	60	0	60	23 Feb	No cover letter		Dr. Mark M. Zella 122 Bio Phys Sci
E. Natural Sciences Letters & Science							As per Dept. Hds. Mtg. 15 Feb 72.
Computer Science	50	3	55	23 Feb			
Botany	200	5	225	23 "			
Physics	200	5	175	24 Feb			
Chemistry	200	5	225	24 Feb			
Geology	200	5	200	25 Feb			
Mathematics	250	6	200	29 Feb			
Zoology	500	7	550	23 Feb			
Biochemistry	40	3	50	23 Feb			
Statistics	258	5	258	25 Feb			
Psychology	300	6	325	23 Feb	+150 on 3 Mar		
F. Home Economics	200	10	225	23 Feb			As per phone 18 Feb to Dean Woolrich.
	Send 50 more to Home Econ on 24 Feb 72						

APPENDIX D

MAJORS WHICH DID NOT REPLY TO THE QUESTIONNAIRE

	CODE	COLLEGE	MAJOR
1.	281	Ag.	Agricultural Sciences Special
2.	291	Ag.	Agricultural Sciences Non-Degree
3.	038	Bus.	Business Undecided Freshmen
4.	039	Bus.	Management Science
5.	048	Bus.	Administrative Office Management
6.	049	Bus.	Industrial Relations
7.	051	Bus.	Business Teacher Education
8.	287	Bus.	Business Special
9.	297	Bus.	Business Non-Degree
10.	282	Engineer.	Engineering Special
11.	292	Engineer.	Engineering Non-Degree
12.	293	Forestry	Forestry and Natural Resources Non-Degree
13.	284	Home Ec.	Home Economics Special
14.	294	Home Ec.	Home Economics Non-Degree
15.	123	Nat. Sci.	Botany and Plant Pathology
16.	140	H.S.S.	Sociology and Anthropology
17.	161	H.S.S.	Industrial Arts
18.	164	H.S.S.	Manufacturing
19.	166	H.S.S.	Foreign Languages
20.	168	H.S.S.	Modern Languages - French
21.	170	H.S.S.	Modern Languages - German
22.	184	H.S.S.	Orchestral Instrument
23.	186	H.S.S.	Organ
24.	188	H.S.S.	Piano
25.	190	H.S.S.	String Instrument
26.	192	H.S.S.	Voice
27.	221	H.S.S.	Trade and Industrial Education
28.	224	H.S.S.	Vocational--Technical Education
29.	280	H.S.S.	Teacher Certification
30.	285	H.S.S.	Humanities and Social Sciences Special
31.	295	H.S.S.	Humanities and Social Sciences Non-Degree
32.	286	Vet. Med.	Vet. Med. and Biom. Sciences Special
33.	296	Vet. Med.	Vet. Med. and Biom. Sciences Non-Degree
34.	289	Nat. Sci.	Natural Sciences Special
35.	299	Nat. Sci.	Natural Sciences Non-Degree

IX. Bibliography

1. American Library Association. A.L.A. Glossary of Library Terms. A.L.A. Chicago, Illinois, 1943.

2. Shores, Louis "The Measure of Reference." Southeastern Librarian. 11:297-302. Winter, 1961.

3. Roth, Elizabeth "Can You Measure Reference Costs?" News Notes of California Libraries. 49:303-307. April, 1954.

4. Rothstein, S. "Measurement and Evaluation of Reference Service" Lib. Trends. 12: 456-72. January, 64.

5. Jestes, Edward C. and W. David Laird "A Time Study of General Reference Work In a University Library," Research in Librarianship. 2:9-16 January, 1968.

6. Lawson, Abram Venable. Reference Service In University Libraries. Ph. D. Dissertation. Columbia University, 1969.

7. Budington, William S. "Cost of Information Service," p. 51-66, in The Library As a Community Information Center. Allerton Park Institute, No. 4 Illini Union Bookstore, 1959.

8. Clements, D. W. G. "Use Made of Public Reference Libraries: A Survey of Personal Users and Telephone, Telex, and Postal Inquiries," Journal of Doc. 23:131-45, June, 1967.

9. McDiarmid Jr., E. W. The Library Survey: Problems and Methods. Chicago, American Library Association, 1940. P. 138-144.

10.

11. Osgood, C. E.; G. J. Suci and P. H. Tannenbaum. The Measurement of Meaning. Urbana, University of Illinois Press, 1957.

12. Gilchrist, Alan "Further Comments On the Terminology of the Analysis of Library Systems." AsLib Proc. 20(10):408-412. October, 1968.

13. Barnes, Ralph M. "Work Sampling Study of How School Teachers Utilize Their Time," p. 131-134, in Work Sampling. 2nd ed. Wiley, 1966.

14. Voos, Henry. Information Needs in Urban Areas: A Summary of Research in Methodology. Rutgers University Press, 1969.

15. Christensen, Paul E. "Work-Sampling: A Stroboscopic View of Teaching" Educational Administration and Supervision. 42(4):230-243. April, 1956.

16. Springer, Clifford H. et al. "Queuing Theory," p. 181-213 in Probabilistic Models. Vol. 4 of the Mathematics For Management Series. Irwin, 1968.

17. Frierson, Eleanor and Pauline Atherton "Survey of Attitudes Towards SUPARS," p. 65-69 in Proc. of the American Society For Information Science. Vol. 8. Greenwood Publishing Co., 1971.

18. Moriarty, John H. "Measurement and Evaluation In College and University Library Studies: Library Research at Purdue University," p. 25-32 in Measurement and Evaluation, ed. by H. Goldhor. University of Illinois Graduate School of Library Science, 1968.

19. Triandis, Harry C. "Attitude Measurement," p. 119-131 in Research Methods in Librarianship: Measurement and Evaluation. Champaign, Ill., University of Illinois Graduate School of Library Science, 1968.

20. Katzer, Jeffrey "The Development of a Semantic Differential to Assess Users' Attitudes Towards an On-Line Interactive Reference Referral System." JASIS. 23(2):122-127. March/April, 1972.

21. Davis, Richard A., Bailey, C. A. Bibliography of Use Studies. Project 195. Philadelphia, Pa., Drexel Institute of Technology, March, 1964.

22. Menzel, H. Review of Studies in the Flow of Information Among Scientists. Columbia University, Bureau of Applied Social Research, 1960.

23. Fishenden, R. M. "Information Use Studies. Part 1. Past Results and Future Needs." Journal of Doc. 21(3):163-8. September, 1965. Part 2. "Comparison of Some Recent Surveys." p. 169-176.

24. Wood, D. N. "User Studies - a Review of the Literature From 1966 to 1970." AsLib Proc. 23(1):11-23. January, 1971.

25. "Review of User Studies," p. 8-1 through 8-22, in Recommendations For National Document Handling Systems in Science and Technology. Appendix A. A Background Study. Vol. II. Santa Monica, California, System Development Corporation, 1965.

26. Paisley, W. J. The Flow of (Behavorial) Science Information. A Review of the Research Literature. Institute For Communication Research, Stanford University, 1965.

27. Atkin, Pauline "Bibliography of Use Surveys of Public and Academic Libraries, 1950-Nov. 1970." Library & Information Bulletin. No. 14. London, the Library Association, 1971.

28. Bates, Marcia J. User Studies: A Review For Librarians and Information Scientists. March, 1971.

29. Weinstock, Melvin J., et al. "User Practices Based on a Review of User Studies," p. V-1 - V-56 in A Recommended Design For the United States Medical Library and Information System. Herner & Co., 1966.

30. Market Dynamics, Inc. The Public's Attitude Toward Public Library Services In Essex County, New Jersey. Princeton, N. J. June, 1969.

31. Educational Research and Services Corporation. Where the People Speak: The Role and Function of Rural Public Libraries in Northern New England. Bedford, N. H., 1969.

32. Wasserman, Paul; and Mary Lee Bundy. Reader in Research Methods for Librarianship. Washington, D. C., NCR Microcard Editions, 1970.

33. Paisley, W. J. "Information Needs and Uses," p. 1-6, 23-30 in Annual Review of Information Science and Technology Vol. 3.

34. Rose, Priscilla "Innovation and Evaluation of Libraries and Library Services," Drexel Library Quarterly. 7(1):28-41. January, 1971.

35. Davis, Diana L. "New Approaches to Studying Library Use," Drexel Library Quarterly 7(1):4-12. January, 1971.

36. Feinler, E. J., et al. "Attitudes of Scientists Toward a Specialized Information Center," Am. Doc. 16(4):329-333. October, 1965.

37. Tornudd, Elin "Study on the Use of Scientific Literature and Reference Services by Scandinavian Scientists and Engineers Engaged in Research and Development," p. 19-75 in Proceedings of the International Conference on Scientific Information, National Academy of Sciences - National Research Council, 1959. Vol. I.

38. Rutgers - The State University. Graduate School of Library Service. Bureau of Information Sciences Research. Bibliography of Research Relating to the Communication of Scientific and Technical Information. New Brunswick, N. J., Rutgers University Press, 1967.

39. Penland, Patrick R. "Librarians' Image of Adult Education," Adult Education. 11(4):239-247. Summer, 1961.

40. Parker, E. B. & Paisley, Wm. J. "Research For Psychologists at the Interface of the Scientist and His Information System." Am. Psychologist. 21(11): 1061-1071. November, 1966.

41. Line, M. B. "Student Attitudes to the University Library: A Survey at Southampton University." J. Doc. 19:100-117. September, 1963.

42. Line, Maurice B. & Tidmarsh, M. "Student Attitudes to the University Library" "A Second Survey at Southampton University." Journ. of Doc. 22(2):123-135. June, 1966.

43. Purdue University, Libraries Staff Association. Purdue University Libraries Attitude Survey, 1959-1960. Lafayette, Indiana, 1964.

44. Remmers, Hermann H. & Kelly I. "A Scale For Measuring Attitudes Toward Any Institutions," Bull. of Purdue University. 35:1-36. No. 4, 1934.

45. Mendelsohn, Harold; Wingerd, K. The Use of Libraries and the Conditions That Promote Their Use. A Report to the National Advisory Commission on Libraries. November 1, 1967.

46. Ferber, Robert "Recent Trends In Marketing Research," p. 33-39 in Research Methods in Librarianship: Measurement and Evaluation. Champaign, Illinois, University of Illinois Graduate School of Library Science, 1968.

47. Slater, Margaret "User and Library Surveys," p. 232-256, in British Librarianship and Information Science ed. by H. A. Whatley. London, the Library Association, 1972.

48. Rosenburg, Victor. "The Application of Psychometric Techniques to Determine the Attitudes of Individuals Toward Information Seeking and the Effect of the Individual's Organizational Status on These Attitudes," p. 443-454, in Proceedings of the American Documentation Institute, 1966, Annual Meeting, Adrianne Press, 1966.

49. Tittle, C. R. & Hill, R. J. "Attitude Measurement and Prediction of Behavior: An Evaluation of Conditions and Measurement Techniques." Sociometry, 30(2):199-213. June, 1967.

50. Line, Maurice B. Library Surveys. London, Archon Books & Clive Bingley, 1967.

51. DeWeese, L. Carroll "An Bibliography of Library Use Studies" p. 1-45, as a supplement to A Statistical Study of Book Use, by A. K. Jain. Purdue University, Lafayette, Indiana, 1967.

52. Cuadra, Carlos A. Annual Review of Information Science and Technology. Vol. 7. Washington, D. C., American Society For Information Science, 1972.

53. North, R. Stafford A Demonstration of the Impact of Certain Instructional Changes on the Attitudes and Practices of Both Students and Faculty. Oklahoma Christian College, 1967.

54. Evans, Charles W. The Attitudes of Adults Toward the Public Library, and Their Relationship to Library Use. University of California, Berkeley, 1969. Diss. Abstra. 31:775-A.

55. Mindak, William A. "Fitting the Semantic Differential to the Marketing Problem." Journal of Marketing. 25(4):28-33. 1961.

56. Bundy, Mary Lee "What Farmers Think of Libraries." Illinois Libraries. 42(9):543-597. November, 1960.

57. Taube, Mortimer "An Evaluation of 'Use Studies' of Scientific Information," p. 46-71 in Emerging Solutions For Mechanizing the Storage and Retrival of Information. Washington, D. C. Documentation Inc., 1959.

58. Loenard, Laurence E., Maier, Joan M. & Dougherty R. M. "Library User Attitude Survey," p. 211-243, in Centralized Book Processing: A Feasibility Study Based on Colorado Academic Libraries. Metuchen, N. J., Scarecrow Press, 1969.

59. Hanson, C. W. "Research On Users' Needs: Where Is It Getting Us?" AsLib Proc. 16(2): 64-78. February, 1964.

60. Barker, A. Stephanie "A Critical Review of the Surveys of Scientists' Use of Libraries," p. 145-179, in The Provision and Use of Library And Documentation Services. London, Pergemon, 1966.

61. Blomquist, Howard "Texas Research League Study of Attitudes Toward Public Libraries Provides Tool For Self-Appraisal." Texas Lib. J. 32: 70-72. September, 1956.

62. Burgess, Norman "Students' Attitudes to Books and to Libraries: A Survey of day-release students at a Technical College: Vocational Aspect of Secondary and Further Education. 16(34): 112-130. Summer, 1964.

63. Nie, Norman; Bent, Dale H. & Hull, C. Hadlai. SPSS: Statistical Package For the Social Sciences. McGraw-Hill, 1970.

64. Auerback Corporation Review of Methodologies For Studying User Needs For Scientific and Technical Information. Tech. Mem. 1151-TN-1. Philadelphia, 1965.

65. Behling, Orlando; Cudd, Kermit "A Library Looks at Itself" Coll & Res. Libraries, 28(6): 416-422. November, 1967.

66. Bundy, Mary L. The Attitudes and Opinions of Farm Families In Illinois Toward Matters Related to Rural Library Development. University of Illinois, Ph. D. Thesis, 1960. Diss. Abstr. 21: 2725, 1961.

67. Skelton, Barbara "Scientists and Social Scientists as Information Users..." J. of Librarianship 5(2): 138-156. April, 1973.

68. Ford, Geoffrey "Research In User Behavior In University Libraries," Journ. of Doc. 29(1): 85-112. March, 1973.